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PHYSIOLOGY.

LECTURES

ON THE

PHYSICAL CONDITIONS

OF THE

TISSUES OF THE HUMAN BODY

AS APPLIED TO THE EXPLANATION OF

VITAL PHENOMENA.

Delivered at the College of France in 1834

BY F. MAGENDIE,

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LECTURE X.

Resumé.—Elasticity in the Arterial System essential to the Circulation.—The Circulation as a Physical Function.—The Circulatory Apparatus described.—Effect of its different Calibers on the Motion of the Blood.—Difference between Arterial Elasticity and Muscular Contraction.—Absence of any peculiar Contractile Power in the Capillaries.—The Structure of Veins.—Evidence that the Heart impels the Blood.—Three Degrees of Arterial Hemorrhage.—Experimental Illustration.—The continued Weeping Stream of Small Arteries dependent on Arterial Elasticity.—The Circulation carried on from the Arteries to and through the Veins by the Heart's Action.—Proof by Experiment.

WE have now, Gentlemen, directed your attention to a physical property which plays an important part in the functions of several organs, and pointed out particularly its connexion with the spinal column, showing how it influences not only the healthy motions of that part of the body, but is also no mean agent in modifying or correcting the diseased states which so often present themselves there. We also hazarded an opinion on the different means proposed for counteracting deformities of the spinal column, and proved that the greater part were vain, unless the physical condition of the bones in particular, and of the economy at large, was improved by the employment of appropriate measures. Without attention to this main point of practice, the innumerable machines by which a deformed limb or spine is surrounded and acted upon can at most produce only a temporary benefit; the radical change in the system is not effected, and the deformity returns after some time, or obstinately resists all the efforts of the practitioner to obtain a cure.

Elasticity, the property to which we refer, is connected in some respect with almost all our functions, and is exhibited in a greater or lesser degree by all our tissues; but it is in the two great functions of circulation and respiration that the influence and important agency of this physical property is best seen and most advantageously studied; in fact, unless we take into account the effects of elasticity in developing and supporting the action of the arterial system, we shall be utterly at a loss to comprehend the most important circumstances connected with the circulation of the blood; and a short review of the opinions entertained by various writers, would show into what absurd and strange errors a want of knowledge on this point is likely to lead. In this function you will find a remarkable junction of physical and vital properties united to produce one common end; but as I have just remarked to you, there is perhaps no act of human organization so badly understood, one upon which such numerous and gross errors prevail in authors, because the chief attention of physiologists has been drawn to supposed vital endowments, which, for the most part, exist only in the imagination; while the physical conditions, though in every respect as important, though accessible to the senses, and capable of being submitted to direct experiment, have been totally neglected, and studied in a superficial manner.

The circulation of blood is, as you all

know, composed of one grand vital phenomenon—viz. the contraction of the central organ or heart, which distributes the vital fluid to all parts of the body, and thus gives rise to the great and small circles, as they are denominated by physiologists; the first comprising the passage of blood from the left ventricle to the branches of the aorta, and its return by the veins; the second, or small, or pulmonary circulation, referring to the distribution of blood by the pulmonary artery, and its return by the pulmonary veins. For our present purpose it will be sufficient to study the phenomena exhibited by the great circulation, especially since the lungs, enclosed as they are by an osseous case, and acted on peculiarly by the presence of an external pressure, are not accessible to experiments of any kind, a circumstance which is to be regretted, as from the nature of the circulation in this part, we might hope to arrive at the most satisfactory results.

The chief organ by which the blood is first impelled and driven into the different tubes destined to convey it to the remotest parts of the frame, is a machine of considerable power, for its force is not confined to a small space, but is felt in the minutest capillaries, and is continued, as you shall presently see, through the whole venous system. The other part of the circulatory apparatus is composed of a series of tubes, distinguished, according to their different functions, into arteries and veins. The former vessels arise from one main trunk, the aorta, which springs from the heart itself, and gives off, in its course, arteries of various caliber, successively subdividing until they at length form the fine capillary tubes which are lost in the substance of our different organs.

The manner in which the different arterial branches arise one from the other is very peculiar and worthy of notice; the caliber of each branch is always less than that of the artery from which it is derived, but the surface of the different vessels, if considered as united, goes on increasing according to the distance from the heart; this, Gentlemen, is an important point to consider in the theory of the circulation, for it is a mechanical condition which exercises a considerable influence on the motion of the blood; the sum of the small arteries forms a cavity much superior to that of the larger, though less numerous, trunks; the blood therefore, in its course from the heart to the extremities, passes continually but gradually from a cavity of small dimensions to one comparatively of great extent, and its velocity is modified according to the following well-known hydronamic law:—"When a fluid traverses a tube, the quantity of the fluid which at any given time traverses different sections of the tube, is always the same; hence, when the tube enlarges, the velocity diminishes, or if the tube decreases in capacity, the velocity is augmented."

This physical law is perfectly applicable to the course of the blood, as you shall presently see by experiments which I will perform before you, and equally accounts for the slow motion of the fluid in the small arteries, and its rapid passage through the veins of any considerable caliber. The tubes destined for the transmission of blood from the heart to the different organs and tissues of the body, are endowed with elasticity in a very high degree; this property, indeed, may be said to belong, par excellence, to the arterial system, which exhibits it in both directions. Whether you distend an artery by introducing a fluid into its cavity, or elongate it by simple traction, you will find that the vessel in both cases returns to its original condition, and develops a remarkable degree of elasticity: you may, if you like, indeed, call this contraction, and attribute it to a vital power residing in the artery, but I, and those who follow my views, regard it as a simple phenomenon of elasticity.

This, Gentlemen, is the true question to be decided between us; but we must have some conventional agreement on the meaning of the terms employed: if, then, you say, that the return of a distended artery to its normal caliber, is a phenomenon similar to muscular contraction, depending on a property of the vessels which is intimately and essentially connected with life, you fall into a great though vulgar error. An artery, I uphold, can never contract like muscular tissue, for such an action would be incompatible, not only with the proper play of our several functions, but with the support of life itself. Examine the various circumstances attending arterial contraction, its surprising regularity, its perfect analogy to that of an elastic body, moved and governed by physical laws, and you will not, I undertake to say, find the slightest resemblance between them, in any condition of health or disease. The anatomist has succeeded, indeed, in tracing a fibrous arrangement in the middle tunics of arteries, disposed, for the most part, in a circular manner, and very evident in the larger vessels of some quadrupeds; but these fibres, so long regarded as muscular, are now known to consist entirely of the yellow elastic tissue, of which I have so often spoken to you, and the chemical nature of which M. Chevreul has

lately determined with the utmost precision, showing it to be composed of an immediate animal principle, distinct from all others. It is to the presence of this tissue that the arteries owe their elasticity, and the idea of a vital muscular contraction is a complete chimera. Other physiologists, who do not go so far as to advocate muscular contraction of the bloodvessels, are yet inclined to endow them with a power of spontaneous dilatation; this is also an error; the dilatation of an artery, as well as its contraction, is passive, that is to say, a simple effect of the elasticity of its parietes, brought into play by the blood which the heart impels continually into its cavity. The pulse has been quoted as an example of this spontaneous dilatation. I shall presently have occasion to speak more at length on the true nature of this phenomenon, and on the combination of causes by which it is produced; in the mean time be assured, that neither in man nor animals will you find a single proof to support the idea of active dilatation, unless it be the existence of a peculiar anatomical arrangement in the batrachiæ, viz., a small pouch or bag, near the bulb of the aorta, which possesses the power of independent action. This is the only exception with which I am acquainted, and it is peculiar to that class of reptiles.

Some anatomists uphold, that a muscular organization is very visible in the aortic arch of the elephant. Now several years ago I had an opportunity of verifying this assertion, by examining one of the elephants at the Jardin de Plantes; we dissected the arterial system, and the aorta in particular, with the greatest attention, and found nothing but the yellow elastic fibres. If from anatomical we pass to physiological considerations, we find abundant proofs of the non-muscular nature of the middle tunic. I have made numerous experiments on the subject, and have directly proved, that in no point of the arterial system do we find traces of irritability; in vain do you prick a living artery with the point of a scalpel; it does not contract under the influence of irritating mechanical or chemical agents; and the application of strong caustics, of electricity, the galvanic current, &c., does not develop any appearance of the presence of muscular power.

These facts have convinced many physiologists of the truth of the doctrine we now advocate, as far at least as the larger vessels are concerned; but they retain some leaven of the ancient error, and attribute a peculiar contractile power to the capillaries only. But this action of the smaller vessels, which has been in latter times chiefly sustained by Bichat, is a supposition completely gratuitous, a power conferred on them for the purpose of explaining the passage of the blood from the arteries to the veins, which that celebrated author was never willing to attribute to the force of the heart alone. Without entering into any details, we may say at once that this contractile action of the small vessels is contrary to observation. Examine the lungs of a reptile with the assistance of a simple magnifier, and you will see the blood passing from the arteries to the veins in an even, slow, course, but you will never notice any movement in the vessels, although the slightest change in the dimensions of the artery would be readily observed; besides, were we to admit a contractile property of this kind, it would follow that each capillary must be disposed in a manner analogous to the heart, composed of two parts, alternately enlarging and closing, and separated from each other by a valve similar to the mitral one. Again, look at the blood in the web of a frog's foot; there, also you have an uniform circulation, manifest to the eye, without any action of the containing tubes. In the larger vessels, indeed, you have an alternate dilatation and contraction, but these are mere physical phenomena, depending on the pressure of the enclosed fluid, and on the elasticity of the arterial parietes. We have, therefore, no reason for attributing a muscular power either to the large or small bloodvessels; nay, all the facts we possess prove the contrary.

We have hitherto spoken exclusively of the arterial system, but the observations now made are equally applicable to the veins. These tubes, like the arteries, are composed of three tunics; the external one is cellular and extremely tough; the internal is very fine and smooth, yet is capable of supporting a considerable degree of pressure. The third coat has been described by anatomists as composed of fibres arranged parallel to one another along the length of the vessel, and very manifest in the large veins. I have in vain sought for these longitudinal fibres of the middle coat, and never found anything but fibres, extremely numerous, and interlaced in all directions. These three tunics united, form a very elastic tissue; in whatever direction you elongate a vein, it soon recovers its original form and dimensions. Bichat, indeed, has denied elasticity to the veins, but without any foundation, for, as I have remarked in a former lecture, nothing is more easy than to assure yourselves that they possess this physical property in a high degree.

The veins, as well as the arteries, are

equally unsusceptible of being irritated by electricity or mechanical injury. We may, therefore, conclude, that from the heart to the smallest capillary vessel, whether we take the arterial or venous system, not a single tube is endowed with contractility any way analogous to muscular, but that the action of the various branches depends upon a physical condition universally enjoyed by all, and one which, moreover, perfectly explains and accounts for the course of the blood and the numerous phenomena depending on the circulation. Let us now see how this principle is applicable to the latter purpose; how, in a word, the different phenomena of the blood's motion are explained by the simple elasticity of the containing vessels, joined to the action of the heart. When you expose a large artery and prick its parietes, the blood is suddenly forced out in a jet, as all the world knows. The production of this jet evidently depends on the contraction of the heart; for as the vessel is constantly full, and the fluid contained in it is forcibly pressed by each contraction of the central organ, when an opening is made the fluid escapes with a force proportionate to that of the impelling power. You have the same evidence of the heart's action when you press upon a living artery with the finger. Put your thumb upon the radial or carotid arteries, and you will feel a sensation of resistance, produced by the manner in which the blood is placed between two pressures, and, in consequence, presses itself against the parietes of the vessel; behind, the heart forces it constantly forward, like the piston of a syringe; the other force resides in the elasticity of the vessel, acting upon the fluid, and developing in it a corresponding reaction.

Here is another fact in the history of the circulation, which is very striking, though simple. When you open an artery, the stream of blood is, as you all know, not uniform, but discharged with alternate jerks. This is the main characteristic of arterial hemorrhage, and is easily explained by the effect of the heart's contraction. At each pulsation of that organ a fresh quantity of blood is injected into the arterial system, the blood in the vessels receives a new impulse, which is manifested by the augmentation of the stream corresponding with each contraction. But this phenomenon, I would have you to remember, is confined to arteries of a certain caliber, and diminishes progressively with the diameter of the vessel, until it is at length no longer perceptible. In the small capillary arteries which are distributed in the different tissues, the alternate contractions of the heart cease to be felt, and the blood flows in a gentle even stream.

Thus we have three degrees of arterial hemorrhage, which may be distinguished according to the size of the vessel. 1st. We have a strong stream, accompanied by jerks (*jet continu—saccadé*). This is seen when a large artery, as the carotid, radial, &c., is opened. 2nd. We have a smaller jet, without alternate jerks (*continu-uniforme*) from the small arteries; and 3rd, finally, a simple weeping of blood (*ecoulement*) when a capillary vessel is divided. These different phenomena, Gentlemen, are mechanical, and cannot be attributed to a muscular power residing in the vessels; they are too regular and constant to be explained by any property which admits many elements of derangement, like a vital muscular principle, but, on the contrary, are readily accounted for by the physical property of elasticity, which we have proved to prevail in a high degree throughout the circulatory system; I, therefore, repeat, that if you have recourse to muscularity, you cannot attempt to explain one of these simple and familiar phenomena, without falling into the greatest absurdities and contradictions.

I shall now proceed to speak in detail of the facts to which I have just alluded. You may see the action of the heart in birds, but not in mammalia. If the chest in the latter class of animals be opened, the respiration becomes immediately affected, and the animal soon dies; but in birds the sternum may be removed, and the heart thus exposed without much inconvenience to the bird, for the aerine pouches remain uninjured, and protect the respiratory organs from too great pressure. In a dog in which the carotid artery, on the right side of the neck, was exposed by an accident, the superior extremity of the vessel was tied, in order to examine the stream more perfectly, when the large stream of blood issued with jerks (*saccadé*), the phenomenon which we first signalized. A very small opening was made in the parietes of the artery, when the stream was alternately elevated, by some *vis a tergo* communicating to it a sudden jerk at stated intervals, and on placing the hand on the animal's chest, each elevation was perceptibly isochronous with the pulsation or contraction of the heart. The stream of blood was very considerable, and the jet was forced to a great length, although the animal on which the experiment was performed was a very small one. This is explained by the hydraulic law already noticed, and not from the mere proximity of the vessel to the heart. The blood flows with greater rapidity in the large than in the small

arteries, because as equal quantities of the vital fluid traverse the different sections of the arterial system, at any given time, the velocity of the fluid must evidently be in inverse proportion to the surface of the tube or tubes which it traverses; and as the surfaces represented by a union of all the small vessels is infinitely greater than the surface of the aorta (or say the carotid artery) from which they are derived, so the velocity of the circulating fluid must be infinitely less. This may be proved by direct experiment, and was, in fact, proved in the experiment to which I have alluded, in opening an artery of a small caliber, when, at once, indications of a slower circulation in the vessel were seen. A continued stream of blood was kept up by the action of the heart, but this stream was comparatively weak; however, the alternate jerks at each contraction of the central organ were still observable, although they were very feeble. Here then the impulsive influence of the heart began to be modified by the subdivision of the tubes, and had I at that time exposed and opened a vessel sufficiently small, the jerking character of the hemorrhage would have been completely lost, and nothing but a simple uniform stream, or weeping, from the divided part, would have been observed. You are to remember that I speak at present of the circulation as it exists in what may be termed the carrying vessels, not of the course of the blood in the substance of our organs, in the depth of the different tissues, where the circulation may, perhaps, be modified by various circumstances. This is a consideration totally foreign to our present object, which is to show the influence of certain physical properties, especially elasticity, on the circulation of the blood, and the manner in which they explain all the phenomena attending that interesting and important function.

The experiments to which I have just referred, simple and familiar as they may seem, give rise to a very curious question, the solution of which had for a long time been unsuccessfully sought, viz. "the transformation of an alternating into a continued motion." You have seen blood expelled from a large artery by alternate jets; during the course of operations, you every day see the blood flow in a continued stream from the minute arteries. The explanation of this phenomena has escaped many physiologists, and amongst them BICHAT himself, who, overlooking the elastic contractility of the arterial parietes, necessarily was ignorant of the effect thence produced. He did not believe that the blood flowed in a continued stream through its vessels, but taught that the entire mass of the liquid was displaced at the moment of the heart's contraction, and stagnated or remained without motion when the ventricle dilated, a circumstance which could not happen unless the arteries were inflexible tubes. This opinion was supported by an English physician, who even constructed an instrument to prove the fact; but it is unnecessary for me to enter into any refutation of the theory, for you have just seen how nature answers the question. The transformation of which I speak was for a long time sought in the arts, and has latterly been attained by the application of this principle in mechanics, viz., "every intermittent motion may be converted into a continued one, by employing the original force to compress a reservoir which keeps up a constant reaction." Thus you cannot keep up a continued stream of water by a common syringe, but one has lately been invented which furnishes a constant flow with alternate strokes of the piston. This has been accomplished by fitting to the instrument a reservoir of air. At each stroke of the piston the air contained in the reservoir is compressed, and by its elasticity expels the fluid between the intervals of the strokes, keeping up a constant stream.*

* The learned and distinguished lecturer might have quoted a very familiar example of this principle, which has been applied for many years to the formation of the double bellows. This instrument is composed, like the common one, of two flat sides and a tube, but is divided longitudinally into two compartments, by a third portion of wood, which is furnished in the centre with a hole of communication between the upper and lower divisions, and this opening is guarded by a valve, opening upwards. The handles of the bellows are fixed to the lower and middle walls. The sides of the upper compartment or second bellows are furnished with elastic wires. When the instrument is worked, and the hand depressed to expel the air, the air partly escapes from the nozzle of the bellows, and partly enters and fills the upper compartment. When, on the contrary, the handles are separated in order to fill the lower compartment, the upper one returns on itself by the action of the elastic wires, its valve is shut, and the air is expelled by the tube. Thus it furnishes a continued stream of air, one part being produced by the action of the hand, as in the common bellows, the other by the elastic walls of the second compartment, which act during the intervals, when the lower one is being filled.—REP. L.

This principle, Gentlemen, is employed by nature to regulate the motion of the blood, and to convert an intermitting movement into a continued one; the effect of the alternate contractions of the left ventricle keep up a constant stream in the smaller arteries, where it is a matter of necessity that the course of the blood should be regular, and where the communication of alternate shocks might be attended with many inconveniences. The transformation is effected by the elasticity of the arterial parietes constantly reacting on the contained fluid, and thus representing the reservoir of air in the syringe of which we have just spoken, but infinitely superior to any artificial imitation. Whenever the vessels lose this elastic property by disease or otherwise, the regular motion of the blood in the extreme branches of the circulating system is deranged, and various accidents of a more or less severe nature are occasioned.

Elasticity also explains the reason why we do not observe a jerking stream from division of the minute vessels. In this part of the system the resistance of the arterial parietes is at its maximum, and the circulation is, moreover, slower, from the difference of surface presented by the mass of the smaller vessels, when compared with the great trunks. It is scarcely necessary for me to dwell at any length on the many inconveniences which would arise, were the vessels destined to convey the blood to all parts of the body through so many inflexible tubes. You would have a shock communicated to all the vessels at the same time upon each contraction of the heart, and you can readily conceive how a circumstance of this kind would aggravate many diseased conditions, if not be an exciting cause of disease itself. At present I will only remind you of the accidents which are developed when the fine branches lose their elastic property by the deposit of osseous matter between their coats.

On the elasticity, then, of the arterial parietes depends this grand circumstance of the circulation, "that an alternate movement is changed into a continued one;" it is derived from a simple physical condition belonging to bodies in general, and, without referring to any imaginary or chimerical vital phenomena, gives us the true theory of the circulation, and of what passes in the course of the blood.

We shall now turn to the consideration of another question which is extremely important, and which has been discussed in a variety of ways between physiologists, from the time of the discovery of the circulation by HARVEY up to the present day. The question is this:—*Is the influence of the heart's action propagated through the arteries and the capillary vessels to the veins, or does it cease to be felt in the minute ramifications of the arterial system?* HARVEY, and many celebrated anatomists, attributed the motion of the blood in the veins to the impulsive power of the heart; but the greater part of modern physiologists, and amongst them BICHAT, sustain the opinion that the action of the central organ terminates at the capillary vessels; that the force which has hitherto moved the blood is suddenly arrested,—does not extend even to the origin of the veins, but that a new power of a different kind is developed in the small tubes intermediate between the two great systems of vessels, and continues the circulation, by an action *sui generis*, from the arteries to the veins. This supposed action of the capillary vessels has become a capital idea in modern physiology, blinding the understanding to the perception of the most evident facts, and leading the mind astray the more readily as it seems to account for the most obscure and inexplicable phenomena. Let us therefore examine it with some attention, and see upon what grounds the ancient theory has been rejected to give place to what I cannot but regard as a chimera.

Let me remark in the first place that the very existence of these capillary vessels is far from being satisfactorily established; on the contrary, we observe a direct communication between the arteries and veins, at least in many organs of the body; thus, for example, in tissues called the erectile, the direct junction of the two systems is very remarkable, and you have only to study the structure of the corpora cavernosa of the penis with a little attention to be convinced of this fact.

In the penis of the horse you will find the communications between the veins and cells of the corpora cavernosa large enough to admit the little-finger; this arrangement is most easily seen by a process which I have been in the habit of employing, and which consists in inflating the body of the organ, and then drying it; when the desiccation is complete, you have only to make a few simple incisions into its substance, to demonstrate the anatomical fact of which I speak. We have therefore, in many cases, a free communication between the arteries and veins, without supposing the existence of an intermediate set of vessels. In the dead body, when you force an injection into a large artery, as

the femoral, it returns quickly by the corresponding vein.*

The same phenomenon occurs, and with greater rapidity, if the injection be made into the artery of a living animal. In cold-blooded, or even in warm-blooded animals, with the aid of the microscope, the blood is seen passing immediately from the arteries to the veins. Since, then, this direct communication between the circulating vessels exists, it is surely more simple to say that the power of the heart is felt by the veins.

But this natural explanation would not satisfy physiologists; they are obstinate in asserting that the heart impels the blood with force, just sufficient enough to convey it to the capillary vessels and no further; hence the necessity of creating a new power to account for its passage through the capillaries, and each one gave a theory of his own. Some said the capillaries were endowed with a peculiar and independent property of contraction; others described a kind of retrograde motion of the blood in its minute vessels, which it is not very easy to understand; finally, BICHAT and his followers endowed them "with a species of oscillation, of insensible vibration, in the parietes." These, Gentlemen, are mere fictions, the inventions of ingenious and talented men, who were led astray because they neglected to study nature, such as she exists, and preferred creating hypothetical powers, rather than apply the physical conditions of our several membranes and tissues to the explanation of functional phenomena. I call them mere ideas, chimeras; because who can pretend to have seen this action of the capillary vessels? Or, admitting its existence, for the sake of argument, how does it explain the circulation of the blood and its passage from the arteries to the veins? Let us grant an oscillation of the parietes to BICHAT; a contractile and dilating power to others; how, I say, again, will these properties account for the transmission of the fluid? Suppose the capillary to contract, the effect of this contraction will be, no doubt, to expel the blood, but will not the latter be impelled as readily backwards towards the heart as in the direction of the veins; suppose the little vessel to have expelled its contents, no matter how or where, by what means is it filled again? Not by the heart forcing a new supply of blood, for this is denied by our physiologists; we must, therefore, suppose an active dilatation of the vessel, by which the blood in the neighbouring arteries is drawn to it; but this dilatation and attraction of the empty tube must of necessity act on the veins as well as on the arteries, and the course of the blood in the former would be alternately arrested, if not made retrograde. In whatever point of view we investigate this pretended action of the capillaries, we find nothing but vague assertions and contradictions; and if we once admit a supposition of the kind, there will be no end to the properties, whether vital or depending on structural arrangement, which must be granted to the smaller vessels. Is it not, then, much more simple to say, that the heart pushes on the blood from the termination of the arterial system to the veins, and becomes the main cause of circulation in that order of vessels? And why should not this be the case? Has any one measured the force of the heart so accurately as to say that it fails just at the moment when the transition of the blood from one system to the other is about to take place? Certainly not: on the contrary, we have every reason to conclude that the influence of the heart extends to the veins; besides, the fact is readily proved by direct experiment, which is worth a hundred deductional arguments. Here, for example, is one sufficiently convincing. I exposed the crural artery and vein in a dog; the surrounding tissues were not much disturbed, because, in order to show well the phenomena which I desired to produce, the animal's thigh should be left as much as possible in the ordinary conditions. I then applied a ligature on the crural vein, high up, near the groin, in order to arrest the course of the blood towards the heart, and thus render the results of the experiment more manifest. Now if, as we have asserted, the heart pushes the blood through the capillary vessels, and continues to act on the fluid in the veins, as soon as one of the latter was opened we should have had in this experiment a continued stream of blood, without any jerking motion, because the jerk is lost in the smaller arterial tubes. An incision was then made through the parietes of the vein, and the jet was seen well enough. It was not, indeed, very large, for the vein did not seem to be well compressed by the ligature, but it was a continued stream of some height. A phenomenon exactly similar is daily seen in the common operation of blood-letting. You may

* We have frequently noticed this circumstance while injecting bodies for the use of students; but it does not universally occur, because the injections commonly employed are too coarse to pass through the smaller arteries. When an injection of tallow, coloured with vermilion, has been used, we have seen the tallow ascend as far as the common iliac vein, leaving the colouring matter below, in the extremities of the arteries.—REP. L.

ask me, How does the existence of this stream prove the propagation of the heart's action to the fluid contained in the vein? The proof is easy. When I compressed the trunk of the crural artery, the stream from that vein diminished, as though it would soon be arrested altogether. On the contrary, when the artery was freed from pressure, and the passage of blood through the smaller vessels was unimpeded, the jet from the vein returned with its original force. I repeated this, moreover, several times with the same effect, at least with the effect of diminishing the flow of blood from the vein, for I do not know why I could not succeed in arresting it altogether. The experiment shall be repeated more perfectly. What you have seen, however, is sufficient to establish the fact, that the influence of the heart is extended to the venous circulation.

UNIVERSITY OF LONDON.

CLINICAL LECTURES

DELIVERED AT THE

NORTH LONDON HOSPITAL,

BY

A. T. THOMSON, M.D.,

Physician to the Hospital, and Professor of Materia Medica in the University.

INTRODUCTORY ADDRESS.

GENTLEMEN,—That event to which the professors of the medical school of the University of London has so long looked forward with an anxious and expectant eye, the establishment of an hospital connected with and dependent upon this school, has at length arrived, and you are now in possession of a place wherein the value of the speculative opinions which you may hear pronounced in the class-room, can be correctly ascertained. I need scarcely, indeed remark, for the opinion is too trite not to be generally known, that it is only at the bed-side of the patient that the practical physician or surgeon can be formed; it is there that the finish must be given to the education of the student; it is only there that theories possessed of any value can be raised, because there only can they be formed by legitimate inductions from *facts*. But, Gentlemen, in what manner are these desirable results to be accomplished? An hospital is opened to you, and its wards already contain a sufficient number of patients to afford materials for the best clinical instruction—namely, forty patients, twenty-two of whom are men, and eighteen are women.* Thus you have access to disease, the means of studying which, and the method of treating which—the end and object of all your prior studies—are before you and around you. The only question for your consideration is, how are you to benefit most by these advantages? Is it by tracing the footsteps of the physicians and surgeons from bed to bed, by listening to the reports of the cases under treatment, and the names of the remedies prescribed, and then reflecting no more on the scene before you, until the period of the next visit recals you to the spot to listen to similar recitals? By such means it is impossible for you to acquire a readiness in the discernment of diseases, and a familiarity in the employment of remedies; and should even all that you hear be committed to the note-book, the mass of recorded cases will afford no other resource than that of a servile, and assuredly too often a dangerous imitation. I am certain, Gentlemen, that you must mentally assent to these assertions, and that your introduction to an hospital, without developing the means of making its inmates available for your instruction, would be placing you in the condition of Tantalus, with the stream of knowledge flowing past your lips, without power on your part to taste its refreshing waters. It is the duty of your teachers to prevent such an evil, and with this conviction on my mind, I think that I cannot do better, as an introduction to the course of clinical instruction which I am called upon to deliver in this place, to present you with an outline of the plan which I intend to pursue, and to inform you what benefit you are likely to derive by following it in your attendance here.

In the first place, I must suppose that none of you will enter as pupils here, until you have acquired sufficient knowledge of *anatomy* to enable you to detect deviations from healthy structure; a sufficient knowledge of *physiology* to recognise with the eye the distinction between healthy and diseased functions, the degree of the latter, and the consequences to be feared from it; sufficient general knowledge of the *theory and practice of medicine* to enable you to distinguish the broad outlines of diseases; and a sufficient knowledge of *materia medica* to enable you to judge of the effects of remedies, and the circumstances that modify their operation. Taking these things for granted, I shall now point out

* At this time (Dec. 2nd) the hospital contains upwards of eighty patients.

the manner in which I mean to proceed to initiate you into a knowledge of the treatment of the sick.

In following in some degree the footsteps of my learned colleague, I must decidedly throw any weight which my opinion possesses, into the balance in favour of small hospitals for clinical instruction, and it is only in such an hospital as this is, that the plan which I have in view can be advantageously followed. It is my intention, therefore, to select in each of the wards under my charge a certain number of cases to which your attention will be most particularly directed, and to keep them closely before you through every stage of their progress, to teach you the essential diagnosis of their morbid state, the hopes and fears with which the result may be regarded, and the general maxims of the treatment, thus illustrating the nature of the ordinary symptoms, investigating closely whatever is doubtful, throwing all the light which I can upon whatever is obscure, and explaining as we proceed every part of the treatment. In selecting in this manner a few cases at a time, I am satisfied that you will acquire more information than from listening to the "report," and casting a cursory glance upon ten times the number of patients. By confining your attention also to a few cases, and by remarking upon them at the time, as far as this can be consistently done at the bed-side of the patient,—and when that would be indiscreet, in the lobby of the wards,—I trust that I shall be able, independently of my weekly lecture, to demonstrate to you every circumstance that may arise in the progress of each case, which can tend to clear up obscure points in its pathology, and afford correct principles for its therapeutical management. Whether in trying new remedies, or making new applications of those already known, I shall endeavour to enable you to discriminate between those changes which are the result of the conservative efforts of the constitution, and those which can be justly ascribed to the powers of the medicines; and, finally, how far the condition of the patient, either mentally or bodily, has modified the remedial influence of the latter, so as to authorize us to calculate the extent of their powers, and determine how far we can confide upon them in similar cases. By proceeding in this manner, I trust I shall be able to excite an interest in each case to allure you, as it were, to study it closely in every stage, to make it a matter of daily contemplation and nightly reflection, and to rouse the ardent spirit of scientific inquiry, and prevent you from being satisfied until everything is explained, everything understood.

Now, Gentlemen, let us suppose that a case is brought into the hospital, the nature and causes of which we wish to discover, with all the information requisite for us to determine in what manner it is to be managed. There are two points of view in which every case is to be regarded: one is *historical*, in which we are to draw our knowledge from the observations and relations of others; another is *direct*, in which we become ourselves the observers. In both a certain method must be pursued, in order that all the circumstances essential to be known may be naturally and easily developed, without overlooking anything which may not be allowed to fall to the ground disregarded. In learning the history of a case, the first facts to be sought for, are the *age*, the *temperament*, and the *occupation*, of the patient. It is essential to mark the first, because some diseases are more common at one period of life than at another; and the same obvious symptoms are often to be traced to different sources, according to the age of the patient. The second, *temperament*, not only modifies the influence of morbid causes on the nervous centres, but it does so most strikingly in the action of medicines; consequently, a remedy which would prove truly salutary in one individual, would exert a deleterious influence on another; and, if we could ascertain this only by witnessing the effects of medicines in each case, our error might often be discovered too late to undo the evil. With respect to the necessity of knowing the *occupations* of individuals, we have daily examples of its importance in deciding on the causes of disease. Thus, during the time that the masons were occupied on the columns of the portico of the University, several of them became patients of the Dispensary, with hæmoptysis and cough, indicating incipient phthisis. Their temperament was such as led to a suspicion of the existence of latent tubercles in the lungs; these had hitherto been quiescent; but in fluting the columns above their heads, and constantly gazing upwards at the work, siliceous particles were introduced into the lungs, and these acting as mechanical irritants, the tubercles were hurried into an active state, and the foundation of a fatal disease was laid. On the same principles, a patient whose complaint is colic, is more easily and rapidly cured if we ascertain that he is a painter, a plumber, or a compositor in a printing office, or even a porter in a manufactory of lead, than if we were ignorant of the nature of his occupation; because, by knowing this, we at once conclude that his disease is colica pictonum, and the appropriate remedies

are immediately applied. Other important features in the history of the case, are, the prior state of health of the invalid; the period of the attack of the disease; whether it was sudden, or preceded by any of the symptoms which usually preface such an attack; whether the patient were exposed to known existing causes; and, finally, whether he have ever suffered from the same disease before, and how far it is connected with hereditary predisposition. But if such an historical statement aid our diagnosis or determination of the nature of the disease, how much more important is our personal examination of the patient! This, then, is the manner in which I recommend you to derive information from such an examination.

In the first place, ascertain every thing that can be learned by careful ocular inspection of the patient: examine *attentively* his complexion, whether it be ruddy, or pale, or defective in clearness; whether it display any eruptions, and the character of these, and whether they extend to the rest of the surface; whether the body be large or small, full or spare, plethoric or wasted; whether any particular parts, more especially glandular organs, be swelled or attenuated, and whether he have the entire command of his arms and limbs. All of these are most important objects of investigation, and ought to be clearly made out and noted down before we proceed to inquire into the condition of the internal organs. Even the size of the hands and the feet should not be overlooked, since we learn from Dr. Cullen, whose personal observation led him to remark, that men with hands and feet that are short in proportion to the rest of the body, are liable to a plethoric state of the lungs; and there is no doubt that the small capacity of the chest in reference to the rest of the trunk of the body, the flatness of the cranium, and several natural deformities, affect the circulation and distribution of the blood; and modify, not only the characters of disease, but also the operation of medicines. Besides, the condition of the exterior guides us in our inquiries respecting the internal organs; thus, if the countenance be anxious and depressed, the lip pallid or livid, and the skin thick and dusky, our attention is at once directed to the condition of the lungs and the heart; we call in the aid of auscultation and percussion, and direct all our means of investigation to ascertain how far the disease belongs to one or to all the organs of the thorax. The state of the pulse undoubtedly affords us much information upon the state of the circulating system. But, without referring to the stethoscope, there can be no doubt that the ear tells us almost as much respecting the state of the respiratory organs; and in many diseases of the chest it is unnecessary to say how important it is to as certain the state of the respiration, whether it be bronchial or vesicular, whether pectoriloquy, or rhonchus, or sibilus, or large or small crepitation, be present; and in employing percussion, whether the sound be hollow or solid. We should inquire carefully respecting pain, and cough, and expectoration; the capacity of the lungs by a full inspiration; the state of the breathing in different positions of the body, in various postures, and under distinct efforts of muscular exertion. If pain exist, it is, also, of primary importance to determine whether this be purely muscular, or in the serous membrane, or in the substance of the lungs. Again; if locomotion be impeded, we are led at once to examine the state of the brain and the spinal marrow—to ascertain whether accidents, or sedative poisons, such as lead or arsenic, or whether mental affections, such as produce, for example, masturbation, may have been the causes of the diminished nervous energy, and how far this is remediable. We question the patient regarding the existence of pain in any part of the cranium, or a sensation of weight, or vertigo, or any defect of vision, or of acuteness in the function of the ear; how he sleeps; whether he dream; and, if wakeful, whether this be accompanied by mental illusions or phantasms.

If there be general or partial attenuation of the body, we inquire into the state of the organs of nutrition, into that of the stomach itself, as indicated by the tongue, or by pain or uncomfortable feelings at the scrobiculus cordis. We inquire into the state of the appetite, and the progress of digestion, defects in which are made obvious by flatulence, eructations, or spasms; we inquire into the state of the liver, judging it by the feelings of the patient in the region of that important organ, and, by tracing with the hand over the surface of that viscus, thus ascertaining its magnitude, its hardness, or its softness, and the sensations produced by pressure on it. We learn also the state of the mesenteric glands and the abdomen generally, by the form and fulness of the belly, and ascertain whether any effusion of fluid have taken place, or any pain exist, either with or without compression. Respecting the habit generally, we investigate the state of the sensations, inquiring whether the patient feel hot or cold; whether he perspire inordinately and at what periods; and whether the perspiration be depen-

dent upon debility and morbid susceptibility of external impressions, or is connected with that condition of the system which constitutes fever.

Having thus made ourselves acquainted with all the particulars of the case, it remains for us to prescribe for the patient, and here we arrive at the end and aim of all our previous investigation. In applying means to relieve existing symptoms, our great object is to ascertain, as nearly as possible, the exact constitution of the patient, his hereditary predispositions, if any exist; his habits, and even the condition of his mind; his temper, and his intellectual habits,—all of which, more or less, modify the operation of remedies, and in an especial manner their doses. Thus, if in one man great nervous susceptibility of impression exist, producing what may be termed a febrile predisposition, causing him to be acted upon by every circumstance, whether mental or corporeal, and wasting down the powers of life; and if in another the opposite state be as obvious, one which is manifested by a diminished sensibility of the nervous system, indicating greater necessity for the employment of powerful stimuli to rouse the energy of the system,—it is scarcely requisite to say that in these two opposite instances, even when the same symptoms indicate a similarity of the disease existing in each patient, the same medicines or the same doses of medicines would not be applicable. Even the moral character of a patient must be studied; and you will have frequent opportunities of observing that this often opposes obstacles to the usual influence of remedial agents. In illustration of this fact, let us suppose two persons of opposite moral habits to be under the influence of gonorrhœa. The high moral rectitude of the one, and his anxiety to be cured of a disease which he regards as a stain upon his character, will cause a constant direction of his mind to the seat of the complaint. A vascular fulness of the mucous membrane, and a state resembling chronic inflammation, are thus likely to be superinduced, and to resist the influence of the remedies, which would speedily cure the disease in the patient with whom the disease is a matter of no anxiety and reflection. In the one case the difficulties are almost insurmountable; in the other, we have merely to keep our patient from his usual habits of dissipation, to ensure the therapeutical effect of the management of the disease, and its speedy removal. It is unnecessary to proceed with these illustrations; we shall have ample opportunity of demonstrating the necessity of an intimate acquaintance with the subject of them in every stage of our clinical inquiries.

But, Gentlemen, in all these proceedings you are only spectators, remarking the progress of disease, and the influence of treatment under the hands of another, perhaps detecting his errors. It will be happy for you in doing so if you profit by my blunders, and establish them in beacons that may warn you, in your own course, from the same quicksands,

But mere looking on, however close and assiduous it may be, will not teach you to recognise and define the nature and degrees and consequences of disease. It will not give you confidence in your own strength; it may make you imitators, but it will not enable you to demonstrate that cases, similar in appearance and agreeing in symptomatic relations, may often really be different or contrary in character, and require another if not a totally opposite method of cure. No, Gentlemen, after your probation as spectators has taught you general principles, you must try your own strength under the eyes of your teacher, and display your powers before your fellow students. Our employments admit of the same means of study as other liberal arts. If a painter wish to perfect his pupil, he does not merely paint before him, nor does the sculptor merely mould into form and expression, the inanimate clay, nor the architect measure with his compasses and balance the fair proportions of the palace he is building before his pupil, if he wish that pupil to inherit his mantle; but he gives him an object whereon to exercise his own powers, afterwards pointing out to him the errors in his progress, and the proofs of advantage which he has derived from the instructions he has received. The same plan may be pursued in medicine; and here we may remark on the peculiar advantages of a small hospital, where all is under the eye of the teacher; and where, at one view, the teacher can observe both the state of the sick and the conduct of the pupils. It is my intention, therefore, Gentlemen, to distribute so many of the cases in my wards among the advanced pupils as I may see fit, superintending and directing their examination into the symptoms of each patient in the presence of the whole attending pupils; and requiring from them daily reports of the condition of the patients under their care, and their opinion as to diagnosis, prognosis, and method of cure; with their reasons for prescribing a particular diet and medicines. Each case will thus become a study to the pupil who superintends it. He will then see more clearly the doubts which often affect diagnosis itself, and before he is called

upon to combat disease with his own resources, he will have become aware of those uncertainties which attend, and must always attend, the art of healing, and which, to employ the language of a great foreign clinical teacher, "prescribes to the artist a prudent moderation." In superintending this part of your clinical studies, I shall reserve to myself the right of approving or modifying or rejecting what you propose; and besides holding consultations at the bedside of the patient, I shall point out to you, in greater detail, my private opinion of the case, and of your views of it. In pursuing this course, Gentlemen, I trust we shall work together for good; you shall walk with me, but I will be your guide; and, in being so, I shall exert every power which I possess to enable you to use your senses as well as your understandings, that whilst we observe and learn, the sick may profit, and the gratitude of our fellow men reward our exertions.

CLINICAL OBSERVATIONS
ON
VARIOUS DISEASES,
BY
MR. WARDROP.

AFFECTIONS OF THE VOLUNTARY MUSCLES TREATED BY PURGATIVES.

The various phenomena accompanying diseases of the nervous system do not appear to have as yet been so satisfactorily explained as those of some of the other systems in the economy. What can be more striking than the differences produced in the functions of the voluntary muscles in these diseases? and yet how inexplicable are they! Why is it that in one disease the muscles lose their power altogether,—in another experience unceasing involuntary motions,—in a third suffer spasmodic actions or cramps,—in a fourth labour under a state of permanent contraction or trismus?

Two of these affections of the muscles, and the treatment employed for their relief, are exemplified in the following cases:—

Case.—*Loss of Voluntary Motion successfully treated by Purgatives.*—A robust-looking man, about thirty-five years of age, suddenly felt, while walking in the street, a numbness in the calf of the left leg, which gradually extended up the limb. In the evening of the same day he had a similar sensation of numbness with loss of power in the left hand and arm. In a few days the same symptoms attacked the right leg and thigh, and the right hand, and in ten days from the first symptoms making their appearance, he completely lost the power of locomotion, and possessed no voluntary power but that of turning his head from side to side, and of moving his toes. The skin remained quite sensible to the touch, the functions of the primæ viæ and urinary organs continued natural, and he had neither headach nor giddiness. By the advice of a physician he was profusely bled and purged, went through a course of mercury, and had blisters applied to the loins, but without deriving the smallest benefit from these remedies.

When I was consulted, which was nearly four months from the beginning of his illness, he was very nearly in the same state as at the commencement of the disease. I found him lying on his back, and he could not without a great effort move even in a slight degree either the upper or the lower extremities, but he could readily move his head and toes. The functions of the organs of sense were entire. He had no difficulty in voiding water: his appetite was good, and he had a daily alvine discharge. His pulse was natural, he had no febrile symptoms, and he was not much reduced in flesh. He stated, however, that for some time previous to this illness, the abdomen had gradually become full and tense, and several days previous to the attack he complained of diarrhœa, at which period he had travelled on the outside of a coach and caught cold.

I recommended to this patient a course of purgatives, giving him a colocynth pill, in conjunction with half a grain of calomel, morning and evening. This pill, with little change, was continued for some time, producing copious evacuations daily, and in about three weeks a decided amendment had commenced. This was remarked by motion being first restored to the fingers, then to the arm, and next to the lower limbs, and every succeeding week there was a distinct amelioration of his condition, so that at the end of four months, during which time the same purgative system was continued, the dose being varied according to the effects produced, he was enabled to walk about without assistance, and to write. From this period he continued perfectly well, and I saw him several years afterwards in the enjoyment of good health, having never had any return of the symptoms.

Case.—*Chorea successfully treated by*

Purgatives.—A striking feature in the treatment of the subsequent case of chorea, or St. Vitus's dance, is the benefit which was derived from a long-continued course of purgatives,—a course which was not interrupted by any untoward circumstance, and from no change in the therapeutic means being required during the whole progress of the cure.

I was consulted in the case of a young lady who was suffering from chorea, with which she had been afflicted about twenty months, and during which time she had been under the care of several eminent practitioners in Paris, as well as in this country. A great variety of different remedies had in vain been tried, and I found her in a most deplorable condition, for besides the constant involuntary motions of her face, head, and limbs, her intellectual powers were much impaired, she had become greatly emaciated, and her skin was covered with an herpetic eruption.

The only system of treatment which appeared to me at all likely to improve her condition, and which had not been tried, was a course of purgatives, conducted on the principles so ably pointed out by Dr. Hamilton, though at this time she had none of the more usual symptoms of deranged bowels.

I ordered two aloetic pills, to be taken three times a day, and the person applied to to make up the prescription was so astonished at the dose, that he deemed it proper to warn the parents of the young lady that her bowels were so irritable that on several occasions only three grains of aloes had been ordered by Dr. Warren, who then attended her, the effect being such that he reduced it to two and then to one grain; that being found to act sufficiently. This circumstance, however, did not dissuade the parents from adhering strictly to the advice which had been given, and accordingly, when I saw her two days after, I found that the large dose of aloes had not caused irritation, but had produced only a few copious evacuations. She continued to take the same quantity of the aloes daily for a fortnight, which generally produced not more than four, nor less than three evacuations in each twenty-four hours. The evacuations were more or less copious, of unnatural quality, and usually consistent, and seldom was there any tenesmus or irritation. All the symptoms of the disease at the same time diminished in severity, and her general appearance was improved.

She now began to diminish the number of the aloetic pills, and during the succeeding fortnight took two only twice a day. Though the evacuations still continued unnatural, both in quantity and quality, they became less copious and more healthy in appearance, and all the symptoms of her disorder continued to be subdued. On these accounts the dose of the aloes was diminished, and during the next fortnight she took only two aloetic pills every morning, after which period the course of purgatives was terminated.

With the exception of an aloetic pill occasionally, and some cascarilla infusion with soda, she took no other medicines, and her health was perfectly restored. Many years have since elapsed, but she has never had any return of chorea, and has become the mother of a family.

There are several important pathological, as well as practical, points illustrated by the two preceding cases. In both, the affection of the involuntary muscles had unquestionably been symptomatic of a derangement in the alimentary canal, as was proved by the effect of the treatment which was employed.

The extraordinary difference in the character of the symptoms in the two cases is worthy of notice. In the first, the patient had lost the power of many of the voluntary muscles, whilst, in the second, the same class of muscles, though they continued to act under the influence of the will, were also affected with almost constant involuntary movements, affording a proof of the curious fact, that the power of the nerves to excite muscular action may either be morbidly diminished or morbidly increased. It remains, indeed, an interesting subject of research, to discover what are the changes in the functions of the chylopoietic viscera, and the corresponding alterations in the functions of particular nerves which those chylopoietic derangements produce. I have already described those disorders of the nerve of vision which are caused by certain disturbances in the digestive apparatus (page 96), and we are familiar with sympathetic affections of the auditory and gustatory nerves, as well as of the frontal, infra-orbital, and other nerves of the face.

In a practical view also the foregoing cases are important, because they afford an excellent illustration of the use of purgatives in a class of diseases which are still frequently considered and treated in a very different manner. They also show the differences in the evacuating effects, and the mild action, of certain purgative medicines given in large quantities in cases where small doses irritate the bowels,—an observation which has been so ably pointed out by Dr. Hamilton in his valuable work.

THE LANCET.

London, Saturday, Dec. 6, 1834.

THE lecturers, we understand, in many of our schools of anatomy, are in the habit of indulging in vehement abuse of the conduct of those officers who, being connected with public institutions, neglect to avail themselves of the powers of the Anatomy Act, for supplying the students with subjects for dissection. But the officers thus condemned are not so much to blame as their calumniators. It is perfectly well known that when the Anatomy Act was before Parliament, the conductors of several of the Corporation Schools interfered with some of the most influential members of the Legislature, to prevent a clause from being introduced into the measure, which would interdict, under a severe penalty, all traffic in the bodies of deceased human beings. By this device these covetous intriguers hoped to obtain and secure an advantage over those minor establishments which had not been founded by, and were not supported out of, the public funds belonging to our hospitals. As wealth had been the *parent* of many of our medical monopolies, so was it expected that the influence of money would still continue to achieve for them what the conductors of those establishments had not ability or industry to accomplish.

Foreseeing, as we did, the difficulty that would necessarily arise out of this omission relative to the buying and selling of subjects, we endeavoured by every means in our power to render the Bill a more perfect measure, by insisting on the propriety of making the purchasing, selling, or bartering of the dead in any way, a penal offence. Unhappily, we laboured without effect, and the consequences of the failure of our arguments are now before the profession and the public. The Colleges and endowed Hospitals had all along endeavoured to destroy the minor schools, and made no scruple of adopting the most nefarious means in order to succeed in that unworthy object. Authorities of such a character ought not to have been allowed any scope for action, but should have been restrained by the vigorous power of the law. If the present state of things be permitted to continue, the supply of subjects will become more precarious even than it was during the time that the resurrectionists exercised their sacrilegious functions. Is it not quite clear that the bribes which the hospital teachers are enabled to offer, under the sanction of corrupt and dishonest treasurers and governors, will out-influence the unaided entreaties of the private teachers who have no charity funds to back their petitions? If, therefore, the conductors of the minor schools be left to the mercy or kindly disposition of their rich opponents, anatomy will cease to be taught except in the schools belonging to the chartered medical corporations. Thus the advantages of competition will be lost to the community, and the chairs in the respective private establishments will exhibit merely so many signs of the flourishing state of hospital nepotism.

But to return to the question of the abuse bestowed on those parochial and other officers who neglect to do what *might* be done by them under the provisions of the Anatomy Act.

As was remarked by us last week, the prejudices which have been so long felt by the public against dissections are far from having subsided. That they are less strong than formerly we are free to admit. This amelioration in the public mind is owing to the increased diffusion of knowledge, and to the repeal of that statute which consigned to dissection the bodies of the most odious of criminals.

Still, the hostility that remains is not to be trifled with,—is not of a character to be slightly encountered or disregarded. Parochial officers, therefore, must, on the exercise of the least reflection, perceive that the omission of a clause from the Act, interdicting the sale of the dead, was not a clerical omission, because they find that the very parties who interfered to prevent any such clause from being introduced, are themselves the first individuals to make offers of pecuniary inducements for the supply of bodies for dissection. This observation on the part of the parochial authorities necessarily gives rise to an apprehension in their minds, that in supplying the schools their motives may be misinterpreted, and that it may be inferred by their neighbours and by persons who are placed under their care, that they have assumed one of the most important functions of the degraded resurrectionists. If it were in the power of the parochial officers to allege that all traffic, all bartering, in the bodies of dead human beings was interdicted, under a severe penalty which was *certain* in its infliction on legal proof of the fact being furnished, they would at once be inspirited to encounter the natural hostility which is still entertained by a large class of the community against instituting a scientific examination of the dead. We would ask those functionaries who are so lavish in their abuse of the parochial officers, whether *they* would volunteer, in the existing state of the law, to transmit the dead to the dissecting-rooms while the possibility of a suspicion existed that they made a pecuniary profit by engaging in such transactions. It is, therefore, both unwise and unjust thus to condemn the gentlemen who are entrusted with the government of those public institutions whence unclaimed bodies might occasionally be furnished, because nothing can be more evident than that they act under the influence of feelings which are entitled to respect rather than condemnation. True it is that the body of no individual who has expressed a wish that his body should not be dissected is to be submitted to that process, and, thus, much of the onerous and invidious duty of transmitting bodies to the dissecting-rooms is removed; but, still, as those bodies which are dissected *can* be sold or bartered without infringing the law, the individuals for supplying the dissecting-rooms are left open to the disgusting imputation that they have profited by selling the remains of their deceased fellow-creatures.

Until, then, this defect in the Anatomy Act is removed by the introduction of such a prohibitory clause as we have explained, parochial officers will continue to act as they do at present, and none but thoughtless or knavish individuals will reprehend them for pursuing such a line of conduct. Of course the teachers who have charged the students for dissections, and yet have not furnished bodies for them to dissect, must exhibit some signs of uneasiness in their office; instead, however, of abusing those persons who have committed no offence against law or decency, they might ease their consciences and have occasion to exhibit somewhat less of sham indignation, if they were to return to their "injured" students a portion of those fees which have been paid for admission into the dissecting-rooms. Such a proceeding would quiet some of the uneasy feelings entertained by all parties.

There is another evil which must be guarded against in effecting any amendment of the Anatomy Act. In the schools which are connected with the hospitals, no bodies ought to be taken from the wards to the dissecting-room without having previously undergone the inspection of some competent, disinterested, public officer. We know that in several recent instances the notices required by

the Anatomy Act have been regularly transmitted by the hospital functionaries to Dr. Somerville, the Inspector, and the bodies have not been removed into the dissecting-room until the time specified by law had elapsed. But we also know that many bodies have been removed and dissected, which ought, instead, to have been the subject of a coroner's inquisition.

The medical officers may prefer the proceedings of the dissecting-room to an examination conducted in the dead-house, because in the last-mentioned situation the examination is undertaken with a specific object in view, viz., that of ascertaining, as correctly as possible, the cause of death. Hence the treatment, and the general conduct of the medical officers, with reference to the deceased party, are considered; and should it so happen that a mistake has been committed, or neglect has been exhibited, the degree of culpability at once appears, and is instantly attached to the offending individuals. But, on the other hand, when the body is taken from the wards into the dissecting-room, the identity is lost; and as the medical officers *may* have an object in concealing the cause of death, so it will generally happen, as no inquiry is instituted relative to that subject, that an examination into the minutiæ of the normal, is deemed paramount to an inquiry into the abnormal, structure; more especially as the attention to morbid anatomy is not excited with reference to such a case, things being so contrived that students, by losing the identity of the body, are not stimulated to inquire into the peculiarities which marked the progress of the disease during life, or in any striking circumstances which were characteristic of the treatment. Things are by these means so "nicely" managed in the hospitals, as not only to obtain for the schools connected with those establishments advantages over those private schools which are unconnected with the hospitals, but to screen many guilty and ignorant parties from the exposure and disgrace which frequently should be inflicted on them for their misconduct.

It is evident, therefore, with reference to this abuse,—for it is an abuse, and a very gross one, — that the Secretary of State for the Home Department, and, through him, the Inspector of Anatomy, must be armed with new powers for the protection, not only of the private schools, but the public. The mighty treasurers and the "recognised" officers will wince and writhe, we well know, at the bare mention of such a proposition. But they must be curbed in their nefarious and tricking career. By thus improving and strengthening, enlarging and liberalizing, the provisions of the Anatomy Act, manifold are the benefits which will be conferred on the profession and on society. To this end, therefore, the medical practitioners of all parts of the kingdom should consult, reason, and explain, with members of Parliament. Such a preparation will secure, in the House of Commons, a great triumph for the cause of humanity over the intrigues of men who are prepared to sacrifice even the best public interests to their own selfish designs.

The number of "inscriptions" for medicine taken up to the 15th of November last in Paris is 2519. The total number of pupils is estimated at about 3500 for the year 1835.

The number of English students who have left this country for France, principally for dissection, is very large, but the greater part of them have been sadly disappointed in their object. Indeed we regret not having before noticed a circumstance which might have spared a useless voyage to many of our country-

men. Although the number of bodies supplied by the different hospitals is very great, yet the numbe of candidates for dissection is still greater. In addition to this, the *internés* and *externés* have the first choice of all the bodies delivered either at the *Ecole Pratique* or at *Clamor*. Hence they or their immediate friends are the only persons well served. Finally, the extent to which pathological anatomy is cultivated in Paris makes the habit of minutely examining almost every dead body very general, and hence the subjects are already half dissected before they reach the amphitheatres. These three causes operate to such an extent that we have heard several persons complain that they were obliged to wait at least a month for a subject, and that dissections were just as easily obtained at Dublin as in Paris. M. ORFILA has done everything in his power to remedy the inconvenience arising from having the bodies already opened and eviscerated in the dead-rooms of the hospital, but with little effect; while the *internés* stick strennously for their right of choice, as they are thus enabled to gain a little money by selling the bodies which they cannot dissect themselves, at a higher rate to their neighbours. Unless the abuses which we have just signalized be remedied by some strong exertions of the administrative power, Paris, as an anatomical school, will soon be reduced nearly to a level with other European capitals.

WE announced some weeks since, the design of M. DUPUYTREN to give 8000*l.* towards the establishment of a chair of pathological anatomy in the Faculty of Medicine. It is thought remarkable that three "very important" courses were wanting in the *ensemble* of instruction given at the School of Medicine. Until this year there has been no clinique of accouchemens, and legal medicine, with pathological anatomy, have no special professors. The French administration will probably not long leave these branches of medicine in their present unpersonified state.

De la Rhinoplastie, Art de Restaurer ou de Refaire Completement le Nez. Par L. LABAT. Paris, Ducessois, 1834.

WE take the opportunity which the appearance of this volume affords us of throwing together some observations on rhinoplastic surgery, or the art of repairing and making noses.

The operative processes applicable to deformities of the nose have been much improved by own countryman Carpue, but since he wrote, Graaff and Dieffenbach in Germany, and Delpech in France, have made so many useful innovations that the art may be said to be almost entirely a new one. The methods of the surgeons whom we have just mentioned are either described in works not very accessible to the general reader, or are known only to a few who may have followed their practice; it will, therefore, be interesting and instructive to collect a brief account of the art as it at present exists, and endeavour to determine what peculiar process is best fitted for the different deformities of the nose which may present themselves to our notice.

The nature and degree of the injury from which the nose has suffered, vary infinitely in different cases; hence we may distinguish with the author, 1st, complete absence of that organ; 2nd, partial deformity arising from loss of one or both lobes at the same time; destruction of a lateral paries, of the dorsum, or of the inferior division of the nostril: these accidents may require each a different operation, which we shall proceed to describe after having briefly noticed the most important general principles which should guide the operator under all circumstances.

The first care of the surgeon should be to ascertain whether the deformity be accidental or arising from disease (as scrofula, lues, &c.); and, in the latter case, to eradicate the constitutional malady before he attempts any rhinoplastic operation.

When the method to be employed has been decided upon, the surgeon should commence by modelling in wax the form of the nose or portion of the nose to be restored; and this done, the wax model must be flattened, and its outline carefully drawn on a piece of paper, which will

afterwards serve to measure the extent and shape of the flap. The outline of the flap is best traced with a pencil moistened in a solution of nitrate of silver; by this means the line is not defaced by the hemorrhage, moisture of the fingers, &c.

Whenever the circumference of the nasal deformity is very irregular, the edges should be equalized by convenient incisions, and the flap should always be dissected from below upwards, lest its outline should be concealed by the blood.

As the skin continues to contract during the first few days which succeed the operation, the artificial nose should always be a little larger than the natural one may be supposed to have been.

In general the edges of the wound resulting from the dissection of the flap should be brought together only with a moderate degree of force, lest the inflammation which inevitably ensues may be augmented beyond measure.

The rules to be observed after the operation are easily deduced from the general principles of surgery. An excess of inflammation must be guarded against by the assiduous employment of every means in our power; as a general rule it may be laid down, that the dressings should remain on until the third day, but as soon as ever cicatrization commences, the surgeon must examine frequently the state of the parts, in order to obviate the deviations to which the new nose is constantly liable.

The ancient history of rhinoplasty may be comprised in a very few words. The operation was known and practised at a very early period of surgery in India by the Brachmans, the Brahmins, and their successors the Koomans. Galen recommends "the surgeon, when a wound or ulcer shall have destroyed the whole or part of the nose, to make a new one at the expense of the integuments of the face." Celsus advises longitudinal incisions like those of M. Dieffenbach, to facilitate the eversion of the flap towards the median line. From India the Sicilian surgeons in all probability received their ideas on the art of restoring noses, and the earliest record we possess on this subject is the report of a Neapolitan Bishop, in 1442, on an operation of rhinoplasty, performed by Branca.

In 1517, Taglicozzi, professor at Bologne, published his work on rhinoplasty, and since that time the operation has been very generally called after his name. The Taglicotian, or Italian method (since revived by M. Graaff and called German), is practised in the following manner:—

The operator, having made a model of the nose in wax or paper, traced its outline on the patient's arm, which was brought up and supported in front of the nasal cavity; the summit of the model regarded the shoulder, and the flap was dissected up from the point to the base, the edges of the injured nose were now pared; and the flap was laid down, and united by various points of suture. The flap received nourishment from its base, which was left adherent to the arm; the fore-arm was supported on a level with the nose for at least twelve days, until the edges of the flap were sufficiently united; at the expiration of that time the base of the flap was divided, and pierced with two orifices to resemble the nares; these were kept open with a bit of lead or lint, and the surgeon endeavoured to give his nose the best shape possible.

Graaff and Delpech are the only moderns who have employed the Taglicotian method, which they have improved by rendering the support and adjustment of the arm more easy, through an apparatus invented for the purpose. In 1814, Graaff operated after this method on a Prussian soldier who had lost his nose by the stroke of a sabre; and in 1817, on an individual who had the lower third of the organ completely destroyed by a phagedenic ulcer; in the latter case the sutures were removed on the fourth day, and the base of the flap was divided on the 6th; on the 26th day he commenced to give the nose its shape; the nasal openings, which had been practised at an early period, were now enlarged, shaped, and kept open by two small tubes of zinc, and in forty days the cure was complete.

The more ancient, and, at the present day, more universally, employed operation, is that commonly known by the name of "Indian" or "Kooman." The honour of having introduced this method into no-

ice amongst the Europeans, is due to our countryman Lucas, since which it has been employed successfully by Lynx, Carpue, Hutchison, Travers, Liston, and several other surgeons. The principle of the "Indian" method is essentially the same as that of the "Italian;" the only difference is that the flap in the former method is taken from the skin of the forehead. It is the one most applicable to all cases where the nose has been completely lost. We cannot give a better idea of it than by analyzing a case in which the Indian method was successfully practised by M. Labat:—

The patient, a French soldier, received a violent sabre cut, during the war in Spain, which completely destroyed the whole of the nose, and a part of the upper lip. The wound soon healed, but the aspect of the patient was so hideous, that he could no longer find employment of any kind, and the brave soldier, discharged from the army, was compelled to beg a scanty subsistence from door to door. He remained in this miserable state for four years, when Dr. Labat, who accidentally met him at Aix, proposed an operation. It was instantly accepted, and performed in the following manner:—

All the preparations, such as the wax-model &c., having been made the evening before, the operator traced the outline of his proper model on the patient's forehead. This model, when traced, exhibited the appearance of an isosceles triangle reversed; the sides thirty-two lines long, the base twenty-eight lines, having in its middle a rectangular appendix of an inch by half-an-inch broad; the latter was destined to supply the inferior part of the division of the nostrils. The two superior angles of the flap were gently rounded off. The second "time" of the operation consisted in the dissection of the flap, which was made from below upwards, and turned down, leaving about four lines undetached between the eyebrows. As the torsion of the flap was difficult, the incision was prolonged down on the left side four lines, by which means the pedicle was more easily reversed, and less liable to strangulation. The hemorrhage was slight, and required no application of ligatures or torsion of the artery.

The flap was now twisted from right to left, and turned down upon the cavity which the nasal fossæ presented; the edges of the old wound were immediately pared, and the edges of the flap fitted in, and fixed on either side by four points of the interrupted suture. The rectangular appendix was now pared obliquely on its epidermic surface, near the extremity, and planted by two points of suture on the centre of the upper lip. In order to render this part of the operation more easy, the frenum and mucous membrane of the upper lip were divided; finally, the operation was terminated by introducing a cylindrical plug of lint into each nostril.

But in order to remedy the extent of cicatrix which would have remained on the forehead, the operator converted the triangular wound into an elliptical one, by rounding off the two superior angles; by this means the cicatrix in the forehead was rendered almost linear. Such is a brief description of the Indian method in its most improved form, applied to the restoration of a nose totally destroyed. The subsequent treatment does not require any peculiar notice. On the 16th day after the operation, M. Labat, on examining the pedicle, which he proposed to divide, found that this manœuvre was unnecessary. He pared a small portion of its edges, exercised gentle compression, and had the good fortune to obtain complete adhesion.

The most remarkable point in the operation just noticed, is the improvement first introduced by M. Lisfranc, of prolonging the incision several lines lower at one side than the other, and thus avoiding too great torsion of the pedicle. However, it would appear, that a similar principle was put in execution several years before by M. Lallemand of Montpelier, in a case of restoration of the lower lip with a flap taken from the neck. Small portions of charpie, succeeded by the use of bits of a gum-elastic sound, are all that are required to keep the inferior aperture of the nares open.

M. Blandin has slightly modified the operation by dividing it into two times. He turns down the flap in the usual manner, and twenty or thirty days later en-

deavours to agglutinate the pedicle of the flap to the proper bones of the nose, after having first removed the skin by which these latter are covered.

We have now briefly noticed the "Italian" and "Indian" methods, as applicable to complete destruction of the nose; let us consider those to which the surgeon may have recourse in cases where the organ has suffered in a minor degree.

When the lobe of the nose has been destroyed by ulceration or accident, several rhinoplastic processes may be employed, according to circumstances. Most surgeons take a V flap from the forehead, and turn it down, thus supplying the tip of the nose absolutely in the same manner as if the whole organ had been lost. When this operation is performed, M. Labat judiciously recommends denuding the cutaneous tissue which covers the proper bones of the nose, in order to establish a more intimate union between this skin and the inner face of the flap. Dieffenbach of Berlin, who since Tagliacozzi is, perhaps, the greatest restorer of noses that ever lived, has modified this operation, and proposes to take the flap from the scalp, in order to avoid the cicatrix in the forehead; and, instead of the sutures commonly used, he employs a quantity of very small needles with the twisted suture. Indeed, in some cases, he has gone so far as to introduce thirty-two of these, in order to obtain a more complete contact. Vide LANCET, present vol., page 81.

In some cases, M. Dieffenbach proposes, instead of taking the flap from the head, to remove the edges of the old nose, and to bring them as close to the median line as possible, after having practised lateral incisions to favour this approximation.

Finally, the author proposes to take two elliptical flaps, one from each cheek, to form the wings of the nose, and to supply the septum below by a flap from the upper lip.

This latter method has been crowned with complete success in practice; the cicatrix on each cheek becomes almost linear, while that on the lip is barely discoverable by the eye. Dupuytren has operated upon two patients, by Dieffenbach's process, and if we are to believe the portraits which are given at the end of the volume before us, the new noses thus made were just as good as the old ones.

When the nasal deformity comprehends only the superior or dorsal ridge of the nose (a case comparatively rare), it may consist either in a congenital or an accidental fissure of the parietes, in a congenital absence of the dorsum, or in a greater or less marked depression of the bridge of the nose.

In the first case, the operation called rhinoraphé is applicable; the edges are to be pared and brought together by the twisted suture, as in cases of hare-lip, and this operation generally succeeds, especially when the fissure has been occasioned by a cutting instrument, as the blade of a sabre. M. Labat details several cases of this latter kind, cured by Larrey and others.

When the dorsum of the nose has been destroyed, it is a point of much practical importance for the surgeon to consider whether or not the loss of substance may not be repaired by simple rhinoraphé; again, he should be careful to examine whether the anterior edge of the septum be sufficiently prominent or not to serve as a support to the flap. Should enough of the septum remain, its edge is to be pared, and the flap united along it; in the contrary case, this union must be avoided, to prevent an ugly depression of the nose. With these precautions the flap is taken from the forehead, and laid down on the dorsum of the nose in the manner already described.

Completede pression, or, rather, burying of the dorsum of the nose in the nasal fossæ, is a most disgusting deformity, though less hideous than those which we have just noticed, and it is to Dieffenbach again that we owe the operative methods applicable to this accident.

It consists, says Dieffenbach, in excising the middle of the dorsum of the nose, like a pyramid, by two transverse incisions, which meet at an acute angle near the skin of the cheek; or the depressed dorsum is preserved, and an oval flap is taken away from the lateral parietes of the organ, and from its cartilaginous septum; one of the ends of this flap regards the dorsum of the nose, the other is turned

downward towards the skin of the cheek. The septum, after these incisions, is united by points of simple suture, and the lateral parietes by the twisted; the effect of the new cicatrix is to throw up the dorsum of the nose, which was before completely depressed.

We have now given a brief account of the operative processes applicable to deformities of the nose. For more ample details, we must refer to the work of M. Labat, which cannot be consulted by the reader without much interest and advantage. We should not omit to notice the lithographic plates accompanying the volume, in which the portraits of several patients, before and after the operation, are faithfully given; the figure representing M. Delpech's patient is particularly worthy of remark.

INTERCEPTED LETTERS.

"Dear Sir Astley,—That eloquent and classical writer, Macnish, in his "Book of Aphorisms," a work which ought to belong to the libraries of both our Colleges, thus expresses himself in allusion to *certificates*:—

"Never judge of a man's honesty or "talents by the *certificates* he produces. "Such documents are just as likely to be "false as true, or, rather, much more so. "The greatest knave can at all times "obtain them in proof of his integrity; "and any illiterate blockhead may, by "their means, make himself appear one of "the most learned and accomplished men "of the age. No degree of knavery or "stupidity is the least bar in the way "of obtaining the most splendid and un-"qualified testimonials."

"Had such sentiments sprung from any interested or time-serving channel, they might have been passed by and left unheeded, but coming from so high an authority, and imbedded in the midst of a collection of wise maxims, on various topics, they cannot but claim our consideration, especially since they apply so aptly, I am grieved to say, to the conduct of several members of your Lincoln's-inn-fields council. As regards yourself, my dear friend, it is particularly *apropos*, for amongst that highly respectable and distinguished body, it is reported that there is no individual who has been so lavish in giving certificates; and it is even said that you have been in the habit of granting them to *every* applicant, and for every kind of office, whether of surgeon or apothecary, physician or man-midwife, wet or dry nurse. I ought not to conceal from you that I have severely reproached Mr. Brodie (I am not yet familiar with the title 'Sir Benjamin') for want of common delicacy, in inducing you to abuse your name by giving a certificate to his private assistant (when the *St. George's Hospital* job was going on), whom, probably, you never saw until he called to request you would speak to his talents. The very circumstance of the youth not getting one from his own master was sufficient to create suspicion, and to cause inquiry and publicity, the very things which I have so often told you we should strive to avoid.

"Before concluding what I have to say to you on this painful subject, let me beseech of you, dear Sir Astley, coolly and maturely to reflect on the system you pursue of appending your name to the certificates given to students of *Guy's Hospital*. You visit that hospital I hear but twice or thrice in a season, and how therefore can you, as a man of high-moral feeling, and a baronet, undertake to certify the assiduity and acquirements of a young man whom you cannot have seen often enough to know even the colour of his coat, much less of his mind? Certificates, my dear Sir Astley, are, indeed, as Macnish intimates, as likely to be false as true, or rather more so.

"If you regard this note as in any degree abrupt, my excuse can only be found in the importance of the subject to which it relates, and in the great esteem which has ever been entertained for you by your sincere friend ———."

"Dear Sir Henry,—Your Bagshot letter, with the enclosure, designed for Sir Astley, arrived safe. The public daily watch with eagerness for your bulletins of the health of the Royal Sufferer. Not that I think there is much lamentation about his royal highness. The anxiety is that of curiosity to see the dexterity and tact which you will display in the composition of the bulletins. Doubtless, it is absolutely necessary that no secrets of the royal bed-chamber should transpire, although, as you ably showed in one of your 'Orations,' it is necessary to gratify the public demand relative to the disorders of royalty. Now, in bulletin-writing, you have most judiciously contrived to hit the *juste milieu*, and I am happy to see in the new documents this happy style still preserved. Thus, in a late bulletin you say,—'His Royal Highness the Duke of Glouces-

ter is the same as yesterday.' Not having acquainted us how he was yesterday, no one can accuse you of telling a court secret to-day, and when in the next bulletin you state that 'his Royal Highness is *going on well*,' the public are quite prepared next morning to hear either that he is alive or is dead

"I have forwarded the excellent admonition to Sir ASTLEY, and I must say that though I think you have handled Sir ASTLEY rather sharply, he well deserves it. If he has a particle of sensibility, MACNISH's maxim must throw him into convulsions, and I do hope that when he is next called upon to write a *certificate*, MACNISH will appear like a phantom before his eyes.

"The work at *St. George's* is finished! and people have done talking about it; but it has left a painful impression on Sir BENJAMIN. He was so annoyed at the exposure that he even went the length of offering half his share of the receipts from the students of the hospital to Mr. WALKER to keep him quiet, but this *douceur* was cavalierly refused.

"At the *Middlesex* the students have no right to complain of a dearth of post-mortem examinations, as there were no less than ten dissections there on Monday the twenty-fourth instant; so at least I have been informed by your nephew. I understand that several of the medical officers are enabled to turn a good deal of money, not by body-snatching, for they are *above* that, but by making and selling preparations, which the practice of that hospital must enable them to do on a large scale.

"The *London University Hospital* has at last opened under the most imposing auspices, and has already more than enough patients for all the purposes of clinical instruction. The Council of Lincoln's-inn fields are justly alarmed, as they cannot avoid 'recognising' it. In order to watch the movements of the University, BRODIE informed me that they are endeavouring to persuade one of the Lincoln's-inn-fields gentlemen to become *a proprietor*, but that several of the most respectable of the Council to whom they have applied have refused. GUTHRIE is supposed to be a likely man, for it will require no usual degree of boldness to oppose the great body of the proprietors. Send over to me, and let me know whenever you arrive from Bagshot, as I have some *Kensington* news which will amuse you. Be not alarmed!

"Your dutiful friend,

"T.

"Curzon Street, November 30th."

LETTER FROM MR. GRAINGER.

To the Editor of THE LANCET.

SIR,—In the leading article of your last Number, it is stated that during the opposition which my lamented brother, Edward Grainger, experienced in the establishment of his school, he was supplied with subjects *gratuitously* by the resurrection men. If this statement were allowed to remain uncontradicted, the only inference that could be drawn from it is, that my brother was guilty of a fraudulent action, by allowing his pupils to pay the usual sum for bodies which he obtained for nothing. The respect that is due to his memory, entitles me to request that you will insert in your next Number my unequivocal denial of his having ever received a single body for the purposes of dissection which was not paid for in the customary manner.

So far is it from the truth that he experienced the kind of aid which you infer, that to my certain knowledge he incurred annually very heavy expenses in providing a sufficient supply of subjects for the numerous students composing his class. That these expenses were principally caused by the unworthy conduct of some of the established lecturers is most true; for, in order to crush the school to which he had secured by his great talents and exertions a reputation almost unexampled in the annals of medicine, his competitors did not hesitate to stoop to the employment of all those petty means of annoyance, which the possessors of wealth and influence, when unaccompanied by integrity, can always command.

That these attempts to destroy the fair prospects of a man, who was too talented to be despised, and too independent to be subservient, met with the signal defeat they so well merited, is notorious; but this is no reason why they should not be held up to the reproof of all honourable minds. I remain, your obedient servant,

R. D. GRAINGER.

Theatre of Anatomy and Medicine,
Webb Street, Southwark, Dec. 3, 1834.

*** In our remarks, we intended to refer to that period of the opposition which Mr. GRAINGER encountered just after his school had been removed from St. Saviour's Church Yard to Webb-street. With reference to our statement, we can assure Mr. GRAINGER that the circumstances were openly spoken of at that period by the students in both of the Borough Hospitals. They were also alleged to be true by MILLARD, who had the care of the dissecting-

room at *St. Thomas's Hospital*, whose statements were afterwards confirmed, if such a confirmation can be admitted, by the testimony of the resurrectionists; and, still further, when not a body could be procured, at any price, in the dissecting-room of *St. Thomas's Hospital*, it was over and over again triumphantly declared by the students of Mr. GRAINGER's school, "that," to use their own words, "they had as many bodies to dissect as they could desire, for nothing." So that it is more than probable, and is in perfect consistency with the known honourable character of Mr. EDWARD GRAINGER, that if bodies were supplied to him for a short time gratuitously, he, for that reason, as gratuitously furnished them to the students. It is well known that the resurrectionists played a most cunning game at that period, and made the "recognised" gentry pay heavily for the base intrigue which they had planned for the destruction of the Webb-street school.

MILITIA MEDICAL APPOINTMENTS.

To the Editor of THE LANCET.

SIR,—I wish to call the attention of yourself, of the Royal Colleges of Surgeons of Edinburgh and Dublin, and of Mr. Warburton, to the clauses in the Militia Acts of the United Kingdom relative to the appointment of surgeon and assistant-surgeons.

The now honorary and gratuitous appointment of surgeon to a militia regiment being lately placed at my disposal by the kindness of a noble friend, I was led to investigate these Acts. The last General Militia Act for England is the Act of the 42nd Geo. III. c. 90, June 26, 1802, entitled "For raising and training the Militia in England." The provision of this Act (clause lxxviii) to "appoint one fit and proper person, who shall have passed an examination at *Surgeons' Hall* (!), and received his certificate accordingly, to be surgeon of such regiment, battalion, or corps," is curious if compared with the following Act in the statute-book, c. 91; also of the 42nd Geo. III. 1802, "For the raising and training of the Militia in Scotland," which provides that the surgeon should have passed "Surgeons' Hall in *London* (!!), or before the College of Surgeons in Edinburgh;" or again, if compared with the Militia Act for Ireland, passed 19th June, 1809, c. 120, 49th Geo. III., which recites, "That the surgeon or assistant shall not be capable of serving in the militia, unless he shall have been certified by the Royal College of Surgeons in Dublin, *London* (!!!), or Edinburgh, after due examination, to be properly qualified in like manner as surgeons *in the army* are required to be certified."

The term "Surgeons' *Hall*" in the English Act of 1802, not being followed by the words "in London," would appear vague and accidental, if it were not strengthened by the words "in England" upon the heading of this Act, and the repetition of the same term in the Scotch Act, and by its not occurring at all in any *previous* General Militia Act. It is singular that it should be used in this other respect, that "Surgeons' *Hall*" was given up as alimony in 1745 to the Barbers, to compensate these Knights of the Razor for their divorce at that time from the Knights of the Scalpel, who were then formed into a separate corporation. The corporation of surgeons petitioned in 1780 to be formed into a *College*, and after spoutings and speeches, in both houses, from judges, bishops, and legislators, remarkable for stubborn folly and ignorance, and unequivocal approbation of quackery, the collective wisdom at last listened to reason, and the corporation was formed into a College in 1800, upon the most detestable and injurious of all principles, that of a close and self-elected body. I should presume, the building used by the London College, must have taken the name of *College* and not *Hall*, from the incorporation, which was two years before the passing of the English Militia Act. The Scotch Corporation of Surgeons was formed into a college in 1778, the Irish in 1784, and they are denominated accordingly in the Scotch and Irish Militia Acts.

Notwithstanding the word "Hall," if we take all the above points into consideration, I do not think a doubt can be entertained that the exclusion of members of the Scotch and Irish Colleges of Surgeons from the English militia, whilst, at the same time, good care was taken to render the members of the London College admissible both into the Scotch and Irish militias, was the deliberate and premeditated design of a selfish, exclusive, and monopolizing spirit, which deserves to be exposed and amended. What sort of justice can there be in suffering such a provision to disgrace the statute-book, when an hospital-assistant, assistant-surgeon, and a surgeon in the army, an assistant-surgeon and a surgeon in the navy, the same in the East India Company's service, are rendered equally eligible by possessing

the diploma of *either one* of the three royal colleges? I cannot conceive what superior claim the London College can prefer *to exclusive* appointments in the English militia, when it is notorious that that body is the inferior body of the three, that its members are TWO-HALF-YEARS MEN in studies and qualifications, whilst the members of the Dublin and Edinburgh Colleges are compelled to follow a broad and liberal system of medical education of five and four years extent, and are superior in every respect.

The Irish Militia Act, passed in 1809, is liberal to the full extent required, and it will be easy enough to amend clause 78 of the English Act in the next session of Parliament, at the annual passing of the Militia Allowance Act, and I hope the attention of our best and most valuable friend Mr. Warburton will be drawn to it. As I have known men appointed assistant surgeons in the militia, who had no diploma whatever, this should also be set right in justice to those who have spent their money in getting a regular education. The militias are disembodied, and by a recent regulation, no pay is now given to medical officers, except during such time as the regiments may happen to be called out on temporary duty, which has been for about a month every three or four years. When the militias were embodied, the full pay of surgeon was 12*s.*, and the net pay 11*s.* 4*d.* a day. I am, Sir, your obedient servant,

JOHN FOSBROKE, M.D.,
Physician to the Ross Dispensary, &c. &c.

Nov., 1834.

CALCULO-FRACTOR.

LETTER FROM MR. L'ESTRANGE IN REPLY TO MR. WEISS.

To the Editor of THE LANCET.

SIR,—As an article subscribed JOHN WEISS appeared in a late number of THE LANCET, reflecting on my character, I trust in that spirit of fair dealing for which you are so distinguished, you will insert the following in your widely circulated and highly-esteemed periodical.

Mr. Weiss accuses me of piracy. This is a hard term, and not easily digested by any honourable man; but as my object is not so much to give a rejoinder to Mr. Weiss as to defend my character and set myself right with the medical public, before which he has attempted to defame me, I shall not stoop to follow, much less to imitate, the coarse and abusive phraseology of Mr. Weiss, and merely *en passant* suggest to that gentleman to recollect, when he pleases again to rush into print, that assertion is not proof, nor declamation argument. Without further preface I shall submit to your consideration a plain statement of facts.

In November 1833, a man was admitted into the *Meath Hospital* labouring under calculus vesicæ. After several trials, in consequence of an irritable state of the bladder, that eminent and distinguished surgeon, the surgeon-general, succeeded in breaking the stone with the hammer, the only instrument then known in Dublin for the operation of lithotrity. On examining this instrument attentively, I saw clearly what I conceived its imperfections, and drew a diagram of my proposed improvement, in the presence of Mr. Power the resident surgeon, and several other gentlemen.

In the following month, December 1833, the screw was applied to the ordinary instrument in use, and having submitted the instrument improved by me (for I never claimed more for my invention than the application of the screw and stilette to the old instrument) to the inspection and examination of some of the most practical surgeons in the city, I was induced, by their favourable opinion, to lay it before a meeting of the Surgical Society of Ireland on the 22nd of March 1834, and from that society I first met with that general and public declaration in my favour, which has since been re-echoed by the most eminent surgeons of London and Dublin. *Hinc illæ lachrymæ.* On the 3rd of the following May I presented it to the Dublin Society, and on the Wednesday following obtained for it the annual medal for the newest invention. The following month, June 28th, the Royal College of Surgeons in Ireland passed unanimously a resolution expressive of their opinion in its favour. Mr. Weiss's instrument had not been known in Dublin till Monday, May the 5th, 1834, whereas my instrument had been approved of by several distinguished surgeons in the previous December 1833, had been presented to the Surgical Society of Ireland in the following March 1834, and to the Dublin Society two days before Mr. Weiss's instrument appeared in this city.

Mr. Weiss, Sir, tells us that he invented the application of the screw ten years ago, this I cannot confirm nor gainsay; but the obvious inference is, that if the instrument was not inapplicable to the purpose for which it was made, it must have been in general use many years since; however, the certificates of the most eminent surgeons of London and Dublin approving of my instrument, must bring conviction to the mind of the most sceptical, that Mr. Weiss's screw-lithotrite and my calculo-fractor differ in some material points besides *name*; it is not possible, it is quite inconceivable, that those distinguished surgeons could speak in such high terms of

my instrument, if it were identically, or nearly the same as Mr. Weiss's—*no*, they all express their delight and astonishment at its great *effectiveness* and *simplicity*. But let them speak for themselves. Mr. Brodie says, "I have examined very carefully the instrument for crushing stones invented by Mr. L'Estrange; the mode of applying the screw is highly ingenious, and altogether it appears to me to be remarkably well adapted for the purpose for which it is designed.—12, Saville Row, August 13th, 1834.—B. C. BRODIE."—Mr. Guthrie says—"I have examined Mr. L'Estrange's instrument for breaking a stone in the bladder, and am greatly satisfied with its simplicity, the first quality in a complex instrument for performing a surgical operation; it will render the operation so easy of execution, that it may be done by any well-informed surgeon.—G. J. GUTHRIE, Berkley Street, Aug. 16th, 1834."

I have, Sir, in my possession, testimonials equally strong from the College of Surgeons of Dublin—Messrs. Travers, Earle, S. Cooper, Keate, Babington, Vance, Crampton, surgeon-general—but it would be tedious, and take up too much of your time, and of the space of your valuable Journal, were I to introduce them here. I have given the certificates of Sir B. C. Brodie and Mr. Guthrie, as Mr. Weiss endeavours to support his pretensions and claims to my instrument by making what I consider an improper use of the names of those gentlemen.

I think I have now fully replied to Mr. Weiss's charge of piracy; and after such a refutation, may I not fling back the charge with that contempt it deserves, and accuse this gentleman of want of candour and of piracy, if there were any grounds on either side for such an accusation, from the similarity of the instruments. I shall now pass to Mr. Weiss's other allegations and complaints. Mr. Weiss tells us (forgetting that he was addressing the most highly-educated portion of the public, through the medium of your name, who will not take his word or mine for proof till they have examined facts), "Mr. L'Estrange has attempted to take away from me all credit to the invention of the screw-percussor, by giving it a new name, and making an alteration in it, which alteration I can prove by letters from gentlemen who have used it, renders it not only inefficient, but dangerous." For the remainder of his accusation, *vide* LANCET of Saturday, Nov. 8th, 1834.

As I have, I think, disproved Mr. Weiss's charge of piracy, and shown that such an accusation can be more fairly brought against himself, I shall as briefly as possible dismiss all those charges against my instrument, with regard to inefficiency and danger, and prove that they are gratuitous assertions, and exist only in the prejudiced imagination of Mr. Weiss, for the thought must certainly be father to the wish. My instrument has been used and experienced to be both simple in application and efficient in execution; and this is, after all, the whole *gravamen* of the complaint. Sir, I verily believe that we should never have heard of Mr. Weiss's reclaimer, but for his conviction that my instrument has and will succeed in the hands of every honest and impartial surgeon.

The surgeon-general, Mr. Crampton, expresses himself of my instrument thus:—"I certify that I have twice used the screw-instrument, invented by Mr. L'Estrange, for crushing stones in the bladder, and that it has given me the fullest satisfaction.—PHILIP CRAMPTON. Merrion-square, June 28th, 1834." Messrs. Hargrave and Rynd, who were present at the operations, give testimonials to the same effect.

The two instruments are now, Sir, before the profession, I shall not insult the judgment and understanding of my medical brethren, by pointing out the difference or superiority of either instrument. In fact, they resemble each other in no respect, except the application of a screw, but any man who examines the two instruments will see in which the greater power is given with the least motion in the bladder, and, consequently, the least injury to the irritable mucous membrane of that organ, and the separation of the screw from the instrument (which Mr. Weiss objects so much to) is of great advantage, and renders the instrument lighter, more handy, and, consequently, more easy of introduction. As to the assertion of the stilette preventing the closure of the instrument, the contrary is the fact, for in order to introduce the stilette, the upper blade must be a little retracted, which the detritus has already done.

I have, I fear, Sir, trespassed too long on your patience and that of your readers, and shall conclude by appealing, in my turn, to the profession at large, to do me and themselves justice; and to that tribunal I refer my cause, and have no fears about the decision. I am, Sir, your obedient servant,

FRANCIS L'ESTRANGE.

38, Dawson-street, Dublin, Nov. 24th, 1834.

P. S. I send you a copy of the certificates given me by the numerous and respectable surgeons who have used or examined my instrument, in order that any of your readers, who are curious about the matter, may see and examine for themselves.

*** Notwithstanding the extreme length of this letter, we have inserted it, in order that Mr. L'ESTRANGE might have an opportunity of justifying his conduct, but it is quite evident that nothing is to be gained by the continuance of the controversy. With respect to the testimonials which Mr. L'ESTRANGE has obtained, he must know that nine-tenths of them are not worth one straw, as it is more than probable that a majority of the testifiers never performed, or even ever saw, the operation of lithotrity, and, what is still more important, have on no occasion compared the two instruments. As regards ourselves, we may state that we have examined both of them deliberately, and with the utmost care, and we have no hesitation in again stating that that of Mr. WEISS appears to us to be preferable in every point of view to the altered and more complicated instrument of Mr. L'ESTRANGE. As the invention of the screw-instrument by Mr. WEISS is upwards of ten years date, the imputation of piracy against that gentleman speaks little for the taste or judgment of Mr. L'ESTRANGE. If Mr. L'ESTRANGE were to come to London and exhibit a contrivance for cracking rocks in the moon, he would obtain "testimonials" of the perfection and capabilities of his apparatus, from many of the persons who have approved of the additions which he has made to the screw-instrument of Mr. WEISS, and to which complicated medley he has given the name of "Calculo-fractor."

DROPS AND MINIMS.—*To the Editor.*—Sir,—The statements, on the subject of drops and minims, of "E." in No. 7, and of Mr. Diamond in No. 9, of your Journal, have induced me to forward to you the following observations:—

That "the comparative proportion of minims and drops is not sufficiently recognised and considered by physicians and the profession generally," must be admitted. It is, however, a question with me whether the table laid down on this subject by your correspondent "E." is calculated in any great degree to obviate so injurious an evil.

It rather seems that the only way to remedy the inaccuracy which has been lamented, will be to abolish *in toto* the drop system. For I think it will be found on trial that it *cannot* carry with it the requisite degree of accuracy.

Thus it may be observed that a specified number of drops will vary *materially* in volume, from many circumstances. Those which follow are some of them;—The size and shape of the rim of the vessel; whether it be entire or not; whether the edge of the vessel be dry or wet; whether it be perfectly clean; or, from frequent use, burdened with the inspissated fluid; the *quantity* of fluid contained in the vessel will produce a modification; as also will the relation which that quantity bears to the total capacity of the vessel; and, lastly, the rapidity with which each drop flows, and the rapidity with which they succeed each other. Being aware of these facts, it could afford me no surprise to find that Mr. Diamond's experiments should have produced results widely differing from those of "E."

If the above statements be true, it must be evident that the plan of dropping is very liable to inaccuracies; for the drop-bottle is not used by all under the same circumstances. Minims, then, ought to be employed, and where a small quantity is required, the only safe method is to mix more than is necessary with some fluid, and then make a division of the mixture. I am, Sir, your obedient servant,

ACCURATUS.

Nov. 25th, 1834.

THE CHINESE, so confessedly exaggerative in the age of their kingdom, seem altogether veracious in their statements of longevity. In 1784, when Kien-Lung made a census of his population of two hundred millions of souls, it appeared that there were only four ages exceeding a century.

SUPPLY OF SUBJECTS FOR DISSECTION.

THE following passages occur in the letter of Mr. Dermott, which we last week mentioned having received. Alluding to the scarcity of subjects for dissection at the minor schools two years since, he says,—

"Some schools (possessing a preponderance of parochial influence) had, in the winter of 1832-33, such an abundant supply, that, not requiring all they could obtain for their own use, they buried the bodies rather than allow them to be transferred to other schools which were in absolute want. Many schools which were not so fortunate as to possess parochial connexions were thus for months without any supply whatever, although the teachers of those classes had exerted themselves to the utmost among the parish authorities in behalf of their pupils. This was the effect of the 'lecturers' generally exerting themselves (for themselves individually) among the parishes, as the correspondent in the *Morning Post* terms it. During this reign of abuse the monopolists did not complain, nor I presume did the writer in the *Morning Post*. Oh, no, they were then well supplied, and were deaf to our representations and intreaties, for this monopoly, the result of 'exertion,' induced pupils to enter to them, in preference to other teachers who had no dissections."

Speaking of the prejudices entertained against dissections, he observes,—

"Another fact, not least to be regarded, is the prejudice, though fast vanishing, which still exists amongst the producing classes against dissection. A conviction of its utility is becoming established amongst them in its stead. The intellect of the working classes is now mightily expanding, and their ears are always open to rational conviction. The two great channels through which they can be convinced of the absolute necessity of dissection are —1st. The cheap periodicals; 2ndly. Public lectures; and certain I am of this, that if unanimity were established amongst the lecturers, and they acted with a sincere desire to do good, that infinite good would be effected if they would take the trouble to deliver a few popular lectures on anatomy, and its importance as connected with physiology, pathology, surgery, and medicine. If, for instance, an arm were brought into the lecture-room, properly dissected, and the relations of the brachial artery with the median nerve &c. were

shown, together with the horrid effects of tying that nerve instead of the artery, explained; if, I say, such things were done, the working classes of society would above all others feel themselves individually and deeply interested in the due prosecution of anatomy, inasmuch as they are peculiarly liable to require surgical aid."

With regard to the latter remarks, we may observe that several suggestions of this description were made in THE LANCET so long back as 1826-7, and were shortly afterwards acted upon, in the most benevolent and praiseworthy manner, by Dr. BIRKBECK at the Mechanics' Institution, whose demonstrations of the structure of the human body before large assemblies of artisans were received with the most respectful and grateful attention. Lectures of a similar nature cannot, we think, be too frequently repeated.

MR. LISTON.—A friend of Sir George Ballingall, who states that he has read the report of the Liston Edinburgh Dinner with much satisfaction, is very desirous that we should give insertion to the following portions of the address of Sir George, as he states that "it has often "been asserted that Mr. Liston and Sir "George have been hostile towards "each other in the pursuit of professional "objects." On perusing this report of his speech, we think we should be guilty of an injustice to Mr. Liston, if we were to decline complying with the request of our correspondent:—

SIR GEORGE BALLINGALL.—Although, my Lord, we have not had the benefit of Mr. Liston's services in the University, yet no one can be ignorant of the essential service which he has rendered to the medical school of Edinburgh, and when I say that his departure will be a loss to that school, and, consequently, to the University, I feel assured, from what has already passed, that I speak the sentiments of every man in this room. As Mr. Liston's colleague in the Royal Infirmary, I have had ample opportunities of observing his conduct, and as the senior-surgeon of that institution, I may, perhaps, be permitted to express what I feel. Upon his operating talents I will not dwell—these are matter of common fame; but there are other traits in Mr. Liston's character which, in my opinion, are not less creditable to himself, and not less important to the school of which he has hitherto been so distinguished a member. I allude to his tact, to his judgment, to his self-reliance, and to his promptitude upon every emergency. There is an anecdote told of the late Dr. Gregory which illustrates my views of the importance of these qualifications, and the application of which will be immediately obvious. The Doctor was pressed upon one occasion to have additional advice, and was told that "in a multitude of counsel there is wisdom;" he immediately replied, "We are not told in Scripture that in a multitude of counsel there is wisdom, but that in a multitude of council there is safety; we are not told, however, for whom the safety is designed. In my opinion," said the Doctor, "the safety is for the surgeon, and not for the patient." Now, my Lord, this is a species of safety of which Mr. Liston has sought but little; his great surgical operations are almost exclusively his own—his own conception—his own planning, and his own execution. I have now, my Lord, been engaged for some thirty years in the study, in the practice, and in the teaching of my profession; and it has been my fortune to see it under a considerable variety of circumstances—in the dissecting-room and in the hospital,—in the camp and in the field,—at sea and on shore,—at home and abroad,—in Asia, in Africa, and in Europe. I mention these as circumstances calculated to give some little weight to my opinion, and to plead my apology for offering it; that deliberate opinion is, that I have never yet seen the man who might not covet, who might not be proud, of Mr. Liston's talents, judgment, skill, self-possession, and dexterity as a surgeon.

BOTANY PRIZES.—The prizes in botany annually given by the Apothecaries' Company to the best-informed students in this science, have this year both of them been carried off by students of the *London University*. These are the only prizes open to general competition amongst medical students in England, and on every occasion since their first establishment, the gold medal has been awarded to pupils of Professor LINDLEY at the above institution. On this occasion two of the Professor's pupils contended for the prizes and won them both. No fact can speak more strongly in favour of the excellence of that gentleman as a teacher, and the assiduity with which the studies of the young men at the University are pursued. The successful candidates this year were,

Mr. Edw. Edlin, who obtained the gold medal, and Mr. Arthur Tinson, who obtained the silver one. These gentlemen are, we understand, very young men, and only "one-year" students. It is an additional feather in their caps that they had for a competitor a student of the *King's College*, who has contended for these medals three successive years.

DR. MANTELL'S MUSEUM AT BRIGHTON.

Last week, Professor Agassiz (the celebrated ichthyologist) visited the Museum of Dr. Gideon Mantell, at Brighton, purposely to examine the splendid collection of fossil fishes, discovered by that gentleman in the chalk hills of the South Downs. A distinguished scientific friend had the gratification of being present, and thus writes to us:—

"M. Agassiz expressed his extreme delight and astonishment at seeing the internal structure of many of the fishes so fully displayed. 'In other collections (he said), in various parts of Europe, I have seen the external forms of fossil fishes in high preservation; but I never expected to see the interior organization and structure laid open in the distinct manner which has here been effected by the consummate anatomical skill of Mr. Mantell. No museum which I have hitherto examined presents anything of the kind comparable with the collection now before me.' The great attention M. Agassiz has bestowed on this department of natural history enabled him to throw much light on some of the specimens. He confirmed, in general, the conclusions of Mr. Mantell, particularly with respect to that remarkable elongated cylindrical mass which is seen within the bodies of some of the fossil fishes, and which, in the earlier specimens, Mr. Mantell supposed to be the air-bladder, but which he had recently informed me he believed to be the stomach or colon.

"The jaw and teeth of an animal resembling, in some respects, the jaw of a crocodile, but differing in other particulars (see Mr. Mantell's 'Geology of the South-east of England,' p. 153), M. Agassiz says, belongs to an extinct class of animals, which he calls sauroid fishes, or fishes that had a structure approaching that of saurians or lizards.

"For the information of your readers who have not seen Mr. Mantell's museum, it may be proper to state, that the fossil fishes in this collection, unlike those generally discovered in the strata below or above the chalk, preserve their natural rotundity of form. In some specimens, the mouth is open, as if in the act of swallowing; and where the internal structure is exposed, the stomach is round and uncompressed. This fact is of considerable importance, as it proves that the animal perished by some sudden evolution of mineral matter, which encased the body before the putrefactive process had commenced, and enabled it to resist the pressure of many hundred feet of chalk deposited over it. Besides the collection of fossil fishes, there is also, we believe, a more complete collection of fossil zoophytes and shells, from the chalk, than can be seen in any other museum; but its chief glory consists in the remains of enormous reptiles, discovered by Mr. Mantell in the Wealds of Sussex, to which he has recently made many important additions, since the removal of the museum from Lewes. To Mr. Mantell we are entirely indebted for our knowledge of the iguanodon, a terrestrial reptile, approaching closely in form to the iguana of the West Indies, but from 70 to 100 feet in length. One thigh-bone is three feet eight inches in length, and about thirty-four inches in circumference at the condyles. A group of four vertebræ of the tail, each of which is nearly twenty-four inches in circumference, proves the gigantic size of the animal. Through the kindness of some of his scientific friends in Brighton, Mr. Mantell has obtained possession of the skeleton of this animal, found the last summer at Maidstone; and though several of the bones are mutilated or lost, he has made out the osteology of some parts of this extraordinary animal which were before obscure. The toe-bones closely resemble those of the hippopotamus, belonging to the hind feet, while the bones of the fore-feet or fingers are comparatively slender, like those of the recent iguana,—a supposition rendered probable, when we reflect that the latter reptile climbed trees, and therefore required prehensile feet; but the monstrous iguanodon would in vain have sought for a tree on which to suspend his colossal form, and would want a firm support for his enormous carcass. From the size of the thigh-bone before mentioned, we may infer that the thigh itself when clothed with muscles and integuments, and covered with scales, must have been *as big as the body of a large ox*. Though numerous teeth of the iguanodon have been discovered, it is greatly to be regretted that no head or jawbone has yet been found; but the recent discovery of so large a portion of the skeleton, in one mass, as that from Maidstone, has fully confirmed the inferences drawn by Mr. Mantell from

the detached bones found before in Tilgate Forest.

"A large portion of another skeleton of a different reptile, which Mr. Mantell calls the hytæosaurus or fossil lizard, presents some remarkable characters, particularly a row of terrific spines, which were probably erect on the back, and in this respect realized the forms of the fabled dragons of romance.

"M. Agassiz spent four days chiefly in examining the fossil fishes."—*Athenæum.*

ST. BARTHOLOMEW'S HOSPITAL.

FUNGUS HÆMATODES OF THE RIGHT BREAST.—OPERATION.

On Saturday, November 29th, at half-past 12, a female was led into the operating theatre, and placed on the table, upon whose breast, on the removal of the handkerchief from her neck, a large tumour, of the size of an ordinary human head, presented itself, occupying the situation of the right mamma, it was of a bluish colour, from enlargement of the subcutaneous vessels, and the skin was tense and shining. Judging from the countenance of the patient, the disease appeared to have made but slight inroads on her constitution. Mr. Vincent performed the operation for its removal. Commencing by an incision surrounding the inferior half of the base of the tumour, he detached it from the subjacent pectoral muscle and cellular connexions, and then, by a similar process, separated the diseased mass from the healthy parts by a semicircular division of the integuments forming the superior half of the base of the tumour. The surface denuded of its natural investments by this operation was at least six inches in diameter. Several small arteries were tied, and the wound was contracted by means of strapping, over which was placed a pledget of simple cerate on lint, and a roller.

On the removal of the patient, Mr. Stanley, who assisted at the operation, brought the diseased mass forwards, and addressed the pupils to the following effect:—"Previous to the explanation of the morbid appearances of the tumour which I now present to you, it is necessary for me to furnish some history of the early stages of the disorder. According to the woman's statement this growth was first perceived eighteen months since, when only a small hard lump presented itself, unaccompanied by pain. This grew but slowly during the first two months, without occasioning any uneasiness, but during the last six months it had gained ground very rapidly, and pain, sometimes of a lancinating nature, had marked its progress up to its arrival at its present size. These latter symptoms had increased rapidly during the last six weeks. From the appearance of the tumour before the operation it was the opinion not only of Mr. Vincent, but also of several other medical gentlemen, that the disease was of the malignant species, and they had arrived at this conclusion from the circumstance of the swelling presenting an irregular surface to the touch, being in some parts hard and unyielding, and in others soft, and easily succumbing to the pressure of the fingers. There was, moreover, a dark appearance of the surface, owing to the enlargement of the cuticular and subcutaneous vessels, but principally of the veins, and this symptom, which even now is apparent, and was much more so before the removal of the tumour, was generally considered to be indicative that the disease which produced it was of the malignant character. Under these circumstances it was thought advisable to remove the mass, and the following is the result of its examination:—We first made a horizontal section dividing it into two equal parts, which I now exhibit to you. You perceive it is of a yellowish appearance, and of a firm texture, and the only thing to which I can at the moment compare it is a piece of udder. Now this certainly did not at first sight indicate any malignancy, and a question arose as to how far it might or might not have degenerated into that state. This, however, was soon decided by a perpendicular section of the right half of the tumour, when these dark soft masses showed themselves, and presented to the touch that brain-like substance, which is so characteristic of real fungoid growth. It is curious to observe how innocent in character apparently are the surrounding parts, while so formidable a disease exists in these detached cysts. This arrangement must have caused that irregular sensation to the touch, which was so evident before the removal of the breast. The inference which I draw from the general aspect of the tumour is this,—that it was true fungus hæmatodes of the malignant kind, and it therefore is to be dreaded that the disease although temporarily arrested by the means just adopted, will at some future and not very distant time make its appearance again, perhaps in a different situation."

A portion was then cut off and presented to Mr. Kiernan, one of the ablest pathological and anatomical investigators of the day, who attended during the operation and the examination of the tumour.

We understand from the patient that she began to menstruate at the age of eighteen, and married at about twenty. At twenty-eight her catamenial discharge ceased, and at this period the disease was first perceived. Her husband has been dead some years.

COMPOUND FRACTURE OF THE LEFT LEG. —AMPUTATION. — MORTIFICATION OF THE RIGHT LEG.—DEATH.

On Tuesday, Nov. 18, a man, a wagoner by occupation, was brought into Rahere Ward, under the care of Mr. Lawrence, with fracture of the right leg. On making inquiries it was found that he had so placed himself, while in a state of intoxication, on the shaft of his wagon, that in passing a toll-house his leg was crushed between the carriage and the post. On examination a small hole at the posterior part of the left leg was discernible. This was scarcely large enough to admit the point of a finger. The surrounding integuments appeared to be sound. The extent of the hemorrhage could not be ascertained, but from the appearance of his clothes, which were soddened with blood, it was concluded to have been considerable. Mr. Lawrence on enlarging the opening, and discovering that the soft parts were extensively lacerated, thought it necessary to amputate the limb in order to save the life of the patient, and this operation was accordingly performed at twelve o'clock p.m., on the 18th, above the knee. At his lecture on Friday evening, the amputator brought forward the limb, which had been previously dissected. It exhibited all the muscles of the calf, with the posterior tibial artery, completely divided, while the posterior tibial nerve remained entire. The fractures of the bones were not comminuted but oblique. The left leg seemed also to have received some serious lesion. Its temperature was very much increased, and there existed total insensibility when it was touched or pinched. The patient was not at all conscious that this leg had received any injury at the time of the accident. No external wound was to be perceived, nor was there any unnatural appearance in the limb to warrant an apprehension of serious mischief in the part. The right leg continued cold and insensible, in spite of the means adopted to restore its natural warmth. The superior portion, however, regained its normal temperature, but the foot remained cold, and without sensation. The strength of the patient daily decreased, and at length mortification of the limb made its appearance in the foot, and gradually extended up the leg. The pulse became weak, and the tongue was coated with a dark brown fur, whilst his fallen countenance indicated that life existed in him only "under the ribs of death." In this state he lingered for a few days, and on Sunday the 30th of November he died. We understand there was an examination after death, but we could not obtain a satisfactory account of the autopsy.

HOPITAL DE LA CHARITE.

CAVERN IN THE LUNGS CURED BY BLOOD-LETTING.

We give the following case of cure of a cavern in the lungs, which lately occurred at *La Charité*, not only as an addition to those already published by Laennec and others, but as a proof of the direct influence which judicious treatment sometimes exercises over a disease considered by most authors as absolutely incurable.

Case.—Meunier (Alexis), twenty-two years of age, was received into the hospital of *La Charité* on the 17th of September, 1834. He has been ill nine weeks; the disease commenced by a slight cold and dry cough, after which he spat a good deal of fetid salt expectoration, mixed with blood. The patient remained for sometime at the Hotel Dieu, which he left very little improved. On his reception into *La Charite*, he presented the following symptoms:—frequent cough; spittle dirty and fetid, very abundant; *matité* at the summit of the right lung, with a cavernous souffle alternating with gargouillement; percussion gives the bruit de pot felé at this point. Twelve ounces of blood from the arm, and the same quantity to be taken by cupping from the thorax. The patient felt better after the loss of blood; the cough and expectoration have diminished. Fifteen days afterwards the patient was again bled to twelve ounces with great benefit; the dull sound at the summit of the right lung has diminished considerably, without being entirely removed; eight days after this, four palettes of blood were taken away by cupping. Since the latter obstruction, the patient feels much better. All the bad symptoms have diminished, and for three weeks the patient has ceased to cough or expectorate; percussion gives a clear sound in the region corresponding with the chronic induration of the lung; the bruit de pot felé persists, but in a less extended surface; the patient walks about, and commences to recover his flesh.—*Gaz. des Hopitaux, No.* 140.

HOTEL DIEU.

M. ROBERT'S REMOVAL OF THE UPPER JAW-BONE.—The patient (whose case we recently gave) from whom M. ROBERT removed the whole of the superior maxillary bone with the new saw à *molette* died last week at this hospital. The wound had perfectly healed without any accident, and the cicatrix on the face presented a most favourable aspect, being almost linear and quite even, when the man was seized with symptoms of trismus, the nervous system became extensively deranged, and in two or three days he died apparently tetanic. After death the greater part of the cavities was healthy; the superior surface of the brain presented a considerable fulness in the arterial system, while the veins were comparatively empty; the arachnoid was opaque in several places, but there were no very evident traces of inflammation, no effusion under membranes, or into the ventricles. The skin covering the front of the face being turned up, and the inferior maxillary bone sawed through near its angles, we had an opportunity of examining the interior of the wound. The greater part of the wound seemed to be cicatrized, and there were nowhere traces of inflammation; the eyeball was free from disease, and well supported in situ by the subjacent cellular substance; there was slight redness and injection at the upper and back part of the wound; but behind and below, the remnant of the cancerous disease could be distinctly seen and felt. The whole of the right pterygoid process was enveloped with a hard cancerous mass, which extended downwards along the ramus of the lower maxillary bone.

EPILEPSY.—Mr. L. HEALEY, of Bewdley, in Worcestershire, has forwarded to us, in a letter dated Nov. 13, the particulars of a severe case of epilepsy, of twelve years' duration, which he treated successfully with the following remedies, after the abandonment of the case as hopeless by several medical gentlemen whom the patient, "Mr. F. T., a barrister, aged 30," had consulted:—"Vegetable diet; freedom of the head from hair; lotions frequently applied to the head; small quantities of blood taken from the head once a week; emetics once a week, fortnight, or month, as need be, followed by a strong purgative administered the next day; alterative medicine, according to the very ingenious and scientific plan of Dr. W. Philip, consisting of blue-pill, &c., in small doses, with an issue or issues in the loins, large, and cut in deep, according to the circumstances of the case and nature of the patient, &c., corresponding to the transverse processes of the third lumbar vertebra,—all this followed up for twelve or eighteen months from the last fit, and left off very gradually in every respect." This plan, which we have transcribed in Mr. Healey's own language, has, he assures us, been successful in many other cases treated by himself, and in three which have been treated by medical gentlemen to whom he advised its employment.

SOMETHING CURIOUS

IN THE WAY OF

"SELF-SUPPORTING DISPENSARIES" AND TITLES.

To the Editor of THE LANCET.

SIR,—Knowing you to be warmly interested for the welfare of the profession, I take the liberty of enclosing the advertisement of a new comer into this place, with which I think you will be not a little amused. You are at liberty to use it as you think proper. I remain, Sir,

Your constant reader,
J. W. VALANTINE.

Sutton-in-Ashfield, Nov. 22, 1834.

[It is too good not to be published. The titles with which Mr. JONES COOPER has adorned his name, are certainly unique. Mr. JONES COOPER must be such a curiosity that we should like to have a lithograph sketch of him.—ED. L.]

"MR. JONES COOPER, *Surgeon, Apothecary, and Accoucheur, Member of the Westminster Medical Society; many years Practical Student of St. George's and St. Thomas's Hospital; and of the Westminster General Dispensary; late a Graduate of Medicine and Surgery at the London University, &c. &c.,*

Having succeeded to the Business of the late Mr. SALES, Surgeon, begs to inform the Public of Sutton-in-Ashfield, and the neighbouring villages, that he has established at his residence lately occupied by Mr. Sales, a

PRIVATE SELF-SUPPORTING DISPENSARY,

Where the Sick Poor may have Advice and Medicines in all Cases of Disease and Infirmities, by applying at the Dispensary from Eight to Ten o'clock every morning.

For a Ready Money Charge, not exceeding 1*s.*—*Or for Children under six years old,* 6*d.*

The object of this Institution is to afford cheap and proper remedies in the hour of sickness, and is intended for the convenience of those sick persons who are above applying for parish relief, and who are still unable to pay for regular Medical attendance.

Poor people are, *for cheapness*, in the habit of applying on the first symptoms of illness, to Druggists or Quack Doctors, or other unqualified persons, many of whom prescribe without any knowledge of the disease they are treating, and are quite ignorant, or regardless of the fatal effects that may, and too often do result from the dangerous medicines they exhibit.

The moderate charge at the Dispensary, which will include bleeding and every means of relief that may be deemed necessary for the speedy cure of the complaint, will afford an opportunity for every poor person to obtain proper and qualified advice at a very low rate.

Mr. JONES COOPER will be anxious to decide at once, whether the patient's disease admits of cure or not, and patients who desire it may depend upon a candid opinion on the real nature of their complaint. It will be his grand object to conduct this Dispensary upon solid and liberal principles, so as to enable it to stand for years a real blessing to the poor in time of their greatest necessity.

All Dispensary Patients must bring their own bottles, and apply before Ten o'clock in the morning, as Mr. Jones Cooper's engagements will not allow him to see any after that time. But those who are unable to attend may be visited at their own houses at an additional charge of 1*s.* in Sutton.

Sutton-in-Ashfield, August 6th, 1834.

Langley, Printer, Bookbinder, and Paperhanger, Mansfield."

CORRESPONDENTS.

We fear that the publication of the letter of *Mr. W. Lambert* would have an effect precisely the contrary of that which he benevolently intends to produce. As the experiments were instituted in the presence of so many spectators, the evidence of the authenticity of the results must remain unquestioned to the end of time; whereas, if assertions only were advanced, individuals doubting their truth might constantly arise, and thus by the continued reinstitution of those experiments in private, thousands of animals might be subjected to a repetition of the experiments. *Mr. Lambert* must recollect that the lectures relate to almost entirely new views, and M. Magendie in the most praiseworthy manner takes care, in the presence of a whole class, to demonstrate his facts clearly and effectively, and the experiments, under such circumstances, are not only justifiable but are even demanded by the nature of the inquiries. Of course, therefore, they will not be repeated except by men who delight in scenes of blood and torture.

Several correspondents are pressing in their applications to ascertain when the next Part of the "Dictionary of Practical Medicine" will appear. Probably Dr. Copland will enable us to reply to their questions in the next LANCET. It is, certainly, a work of very great labour, and we are not surprised at the occurrence of a little irregularity in the appearance of the respective Parts of so elaborate a publication.

The Index to the last Volume will be issued with the number containing the last lectures of Dr. Grant's course. The index cannot be published at an earlier period, as it must necessarily refer to the contents of those lectures.

If *Observator* will forward to us one of the letters of the proposed series, he shall have an answer immediately after we have examined it.

C. C. E. Quest. 1. No, not unless he is required to disfranchise himself, which we do not suppose he is.—Quest. 2. Reported by addressing the president and censors.—Quest. 3. Answered in another place.—Quest. 4. Yes, they will "recognise" such certificates.

H. Though not bad, we must have something better if we publish rhymes.

———*Surgeon and Constant Reader.*—The review of the cases of Dr. G. H. is not unjust in its criticisms, but the cases are so truly unimportant, so utterly worthless, that it would be absurd to bestow a paragraph on the report, or on the misconceptions of its author.

J. W. It may arise from a variety of causes, but we never heard of a case in which it was traceable to the cause referred to by our correspondent. A surgeon of experience should see the patient, as the malady, if it arises from any of the ordinary causes, admits of being remedied.

Dr. BLUNDELL's letter in reply to Dr. Ashwell's second statement has been received, and shall appear in our next Number. It arrived too late for insertion in this week's LANCET.

ERRATA.—In Mr. Meade's communication, page 331, line 2, *for* menispermuno *read* menispermum; line 14, *after* destitute *add* of taste.—In Dr. Glanny's article, page 313, col. 2, line 33, *for* Mr. Crocdon *read* Mr. Crondace; line 30, *for* 19 cubic inches, *read* .19 cubic inch.—Page 314, col. 2, line 29, *after* of *add* a cubic inch.—In Leader, last week, page 358, line 26, *for* common opinion *read* correct opinion.